

PURCHASING

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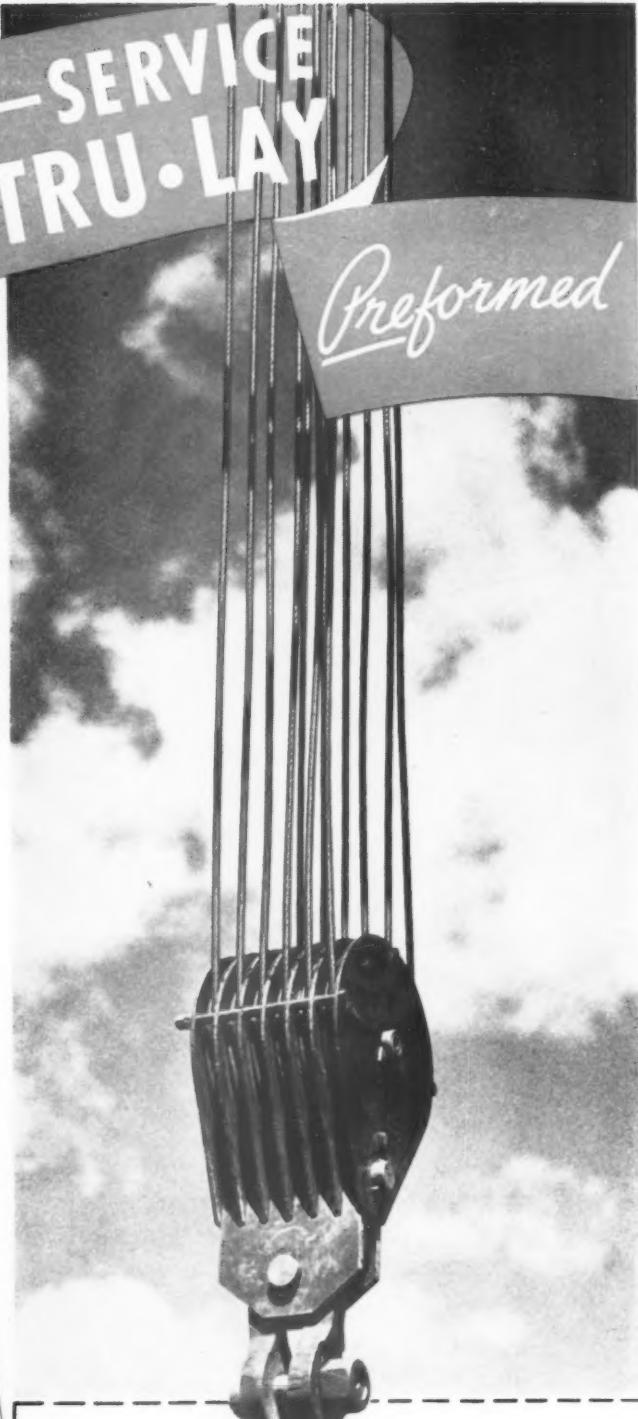
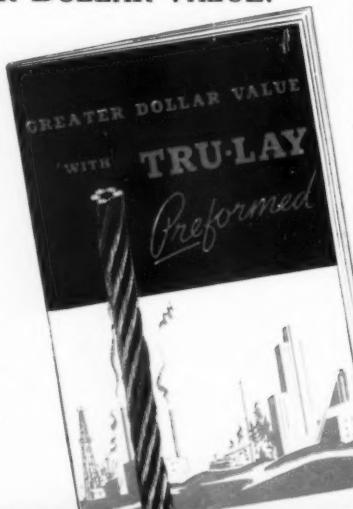
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DEFENSE BUYING COMES FIRST

TODAY'S industrial purchasing executive faces more than a change in conditions. The rules themselves have changed "for the duration".

To understand the economy under which we are buying today, we must remember that there is just one major objective—national defense. Priority ratings express that fact in very clear and simple terms. It becomes the first consideration in every transaction. It is a program for the common good.

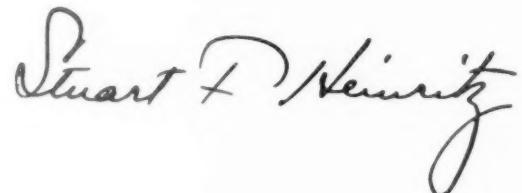
National defense is a problem in purchasing. Since the first of the year it has been set up on the pattern of a good centralized purchasing department. It is buying for all of us. The other divisions—Materials, Priorities, Price Administration—exist to serve the purchasing operation. These are the divisions with which the industrial buyer comes in contact in his particular daily problems. They will serve him, too—to the extent that he is working on orders issued by the defense buying agencies.

This arrangement is a proper one. The European situation in 1939 put us overnight into an acute sellers' market. To superimpose our own tremendous and urgent defense buying upon that market would have created an impossible situation if normal supply/demand reactions had been permitted to prevail. The present controls serve to mitigate the possible—and probable—abuses of such a market.

That permits defense purchasing to function; secondarily, it benefits all industry in the larger view, though many individual difficulties may be temporarily imposed. For the organization in Washington is not unmindful of non-defense needs, nor is it failing to consider post-war developments.

If we believe in management responsibility and in centralized purchasing, we must approve the present organization. It is competently staffed, with men whom we know and trust. Meanwhile, we are a part of the production department. In working with the Defense Purchasing division, we help them to serve us as a nation.

Now is the time for all purchasing men to learn the new rules, and to play the team game. By so doing, we make our greatest contribution to our common cause.



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THE SPOTLIGHT IS ON PURCHASING

By STUART F. HEINRITZ

THREE are just two men in this organization who are indispensable today," said the Executive Vice President of a nationally known manufacturing company, the other day. "They are the Production Manager and the Purchasing Agent. If either one of them should fall down on his job, the wheels would stop turning in short order. But they won't fall down."

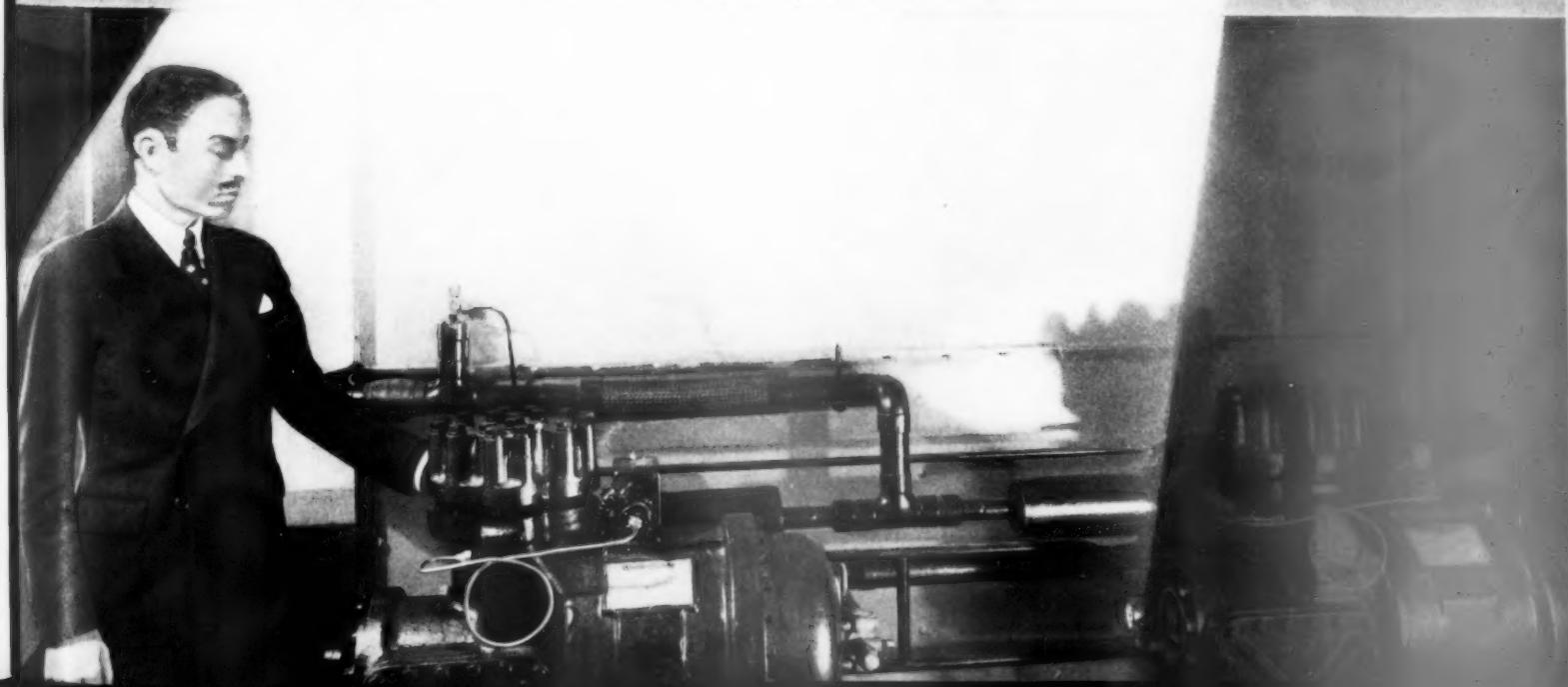
That comment voices a conviction of management that was first realized, and first expressed, almost exactly twenty-five years ago, and under circumstances which bear a striking resemblance to the conditions of the present. The spotlight of emergency, which was first trained upon the purchasing man in World War I, is again focused in his direction. It has not changed the basic principles of industrial management organization, but it is illuminating and emphasizing them unmistakably for every management executive.

Purchasing, the service function, is a creature of large scale enterprise. Buying has always been one of the many operations that have to be performed to keep a business running, along with selling, designing, production, accounting, financing, and all the rest. When the volume of buying gets big enough to take up a man's whole time, a man is delegated to that responsibility and becomes the Purchasing Agent. In that respect, the history of purchasing is no different than that of any of the other functions cited, except that it has been one of the last of these functions to be segregated with centralized responsibility.

Originally all of these responsibilities rested in the owner or manager; one by one they were delegated as the job grew too big for one man, and fell into a gen-

eral pattern along functional lines. That process is the counterpart, in administrative organization, of the economic principle of the division of labor. It is a process that is continually going on in individual companies. There are hundreds of examples of firms in which sales and advertising, design and production, or purchasing and production, finance and accounting, are necessarily handled as the dual responsibility of one executive. But with continued growth, further specialization—the centralization of responsibility and authority for each function—becomes inevitable. In the purchasing field, for example, there are approximately 10,000 firms where buying has been centralized in a separate department under a responsible purchasing executive. But this relatively small group, numerically only about 8% of those companies important enough to be considered in a census of manufacturers, represents nearly 70% of the country's total industrial output—an important responsibility indeed!

In every field, it has followed naturally that specialized attention has resulted in specialized skills and greater efficiency. The perfected science of selling, the notable achievements of advertising, the economies of mass production, and the constructive benefits of accurate cost accounting, are the results of that specialized and concentrated attention made possible by a policy of separate functional responsibility. Just so, the centralization of purchasing, while it left the production man free to become a better producer by relieving him of his buying duties, resulted in better buying—a more thorough canvass of available sources, better correlation with the market conditions, closer attention to quality, a smooth and assured flow of materials, fewer losses from waste and obsolescence, more rapid inventory turnover.



Progress was not rapid in the early stages of this development. In the first decade of this century, the Purchasing Agent had little precedent to guide him, no standards of performance, no literature, no special training, no commercial contacts outside his own organization except the salesmen who called upon him. He was forced to rely upon native intelligence, initiative, and experience to develop his own procedures and policies. It is significant evidence of the basic soundness of centralized purchasing that so many buyers, working out their problems independently and under a wide variety of conditions, should have arrived at such consistent policies and methods of operation in laying the foundations of modern scientific purchasing.

Purchasing Proves Itself

Purchasing, a recognized function of management, and purchasing, the profession, are a product of World War I. That period was marked by the rapid growth and expansion of industry, a sudden demand which changed the normal trade relationship into an acute sellers' market, shortages of essential materials, a strong upward price surge, priorities, and governmental regulation. Every one of these factors placed an immediate responsibility upon the Purchasing Agent, and dramatized the function. For the first time, management regarded him as one of the indispensable men of the organization. Heretofore, he had been just emerging into the status of a separate functional department head, traditionally regarded as a minor executive, and operating under the stigma of a "non-productive" activity. Overnight, it became a case of "If the Purchasing Agent should fall down on his job, the wheels will stop turning in short order." Purchasing Agents did not fall down on that job.

For the first time, too, there was an appreciation on the part of purchasing men themselves that they had a common interest with other men engaged in buying, common problems that could better be solved by conference and cooperation, common objectives that could be more effectively attained by united effort. A few local groups had been organized, limited in size and influence to their own particular cities and without knowledge of or interest in each other's existence. The year 1915 witnessed the organization of the National Association of Purchasing Agents, a title more descriptive of an idea than of a fact, but an idea which rapidly came to fulfillment. The same year saw the establishment of "The Purchasing Agent," predecessor of PURCHASING, the first publication devoted specifically to the affairs and problems of the purchasing man, providing a voice for the purchasing viewpoint and a medium for the development and interchange of purchasing opinion. In the same year, the first N.A.P.A. convention was held in New York City. All of these efforts were small and rather insignificant, judged by today's standards. But the milestone is clearly marked, the beginning of a movement that has grown steadily in numbers and in character over the years, until its influence is a potent one in national economic policy and in the industrial life of every manufacturing area in the United States and Canada.

If centralized purchasing proved itself in the actual task of wartime procurement, it was even more effective in the reaction which followed—in the conservation of values, the orderly liquidation of topheavy inventories and commitments, the return to normalcy. Less spectacularly, in the lean thirties, purchasing played a leading role in an industrial economy where profits were more likely to result from scientific buying

and adjustment to new materials and processes, rather than from extraordinary sales volume. In recent years we have heard little reference to purchasing as a non-productive function of business.

History Repeats

In the fall of 1939, with the outbreak of World War II, a situation developed which is strikingly parallel to that of 1915. Every factor noted in that earlier experience is again present, but in greatly intensified measure, following the mechanized, accelerated tempo of the day. We have record-breaking production schedules and plant expansion on an unprecedented scale, subsidized by government to meet the defense emergency. After a prolonged buyers' market, we swung abruptly to the other extreme—statistically, a 43-billion dollar defense program superimposed on normal demand, with a large portion of productive capacity diverted from its intended purpose to armament manufacture, while public purchasing power is on the upgrade.

We have potential shortages of essential materials and bottlenecks in finishing capacity, to the point where substitute materials have become a primary concern. We had an initial period of skyrocketing prices and now a steady pressure toward higher levels. We have priorities, and government regulation of prices, production, stocks, exports, and other material factors, implemented by legislation more far reaching than ever before.

Sooner or later, we shall have a reaction from these conditions, proportionately more severe and more difficult as our present situation is on a more intensive scale than in the previous experience.

All of these factors have turned the spotlight once more upon the Purchasing Agent. For it is in his province, the procurement and flow of materials, that this program must be worked out. It is his responsibility to get the goods, and at the same time to maintain an economic equilibrium of price and supply, for the sake of the national interest, for his own company, and for the economic health of the nation as a whole.

Purchasing for Defense

The importance of purchasing in the present emergency is emphasized by the governmental organization for national defense. After months of indecisive experiment in which the act of procurement was regarded as a side issue though the fact of procurement was conceded to be a primary objective, the government has turned to the pattern of centralized purchasing as practised in large scale progressive industry. The Division of Purchases is no super-agency; it does not originate requisitions nor dictate standards. But, closely coordinated with the other divisions, it is one of the four key departments, reporting directly to the Director General, invested with full authority to buy and to plan a long range buying program. In a very real sense, the other divisions—Priorities, Production, and Price Control—exist to aid Purchasing in carrying on its work. And every order issued by this Division places a responsibility on some Purchasing Agent in industry to procure the materials that will start production on that order.

The other factors are present, too. There's a new interest on the part of management toward its own purchasing departments, and a new upsurge of group consciousness among purchasing men. It is no mere coincidence that N.A.P.A. membership has reached an all-time high at this time, or that interest in the forthcoming

Continued on page 132

WITHOUT BENEFIT OF PRIORITY

HOW WILSON SPORTING GOODS CO.
HAS ADJUSTED ITS BUYING TO THE
DEFENSE-MARKET SITUATION



FRED J. BOWMAN



● All component parts of the club are carefully weighed before assembly.

A CASE STUDY OF A NON-DEFENSE INDUSTRY

By
HERBERT E. FLEMING

Based on Interviews With
F. J. BOWMAN, Vice-President and
Chairman of Purchasing Committee

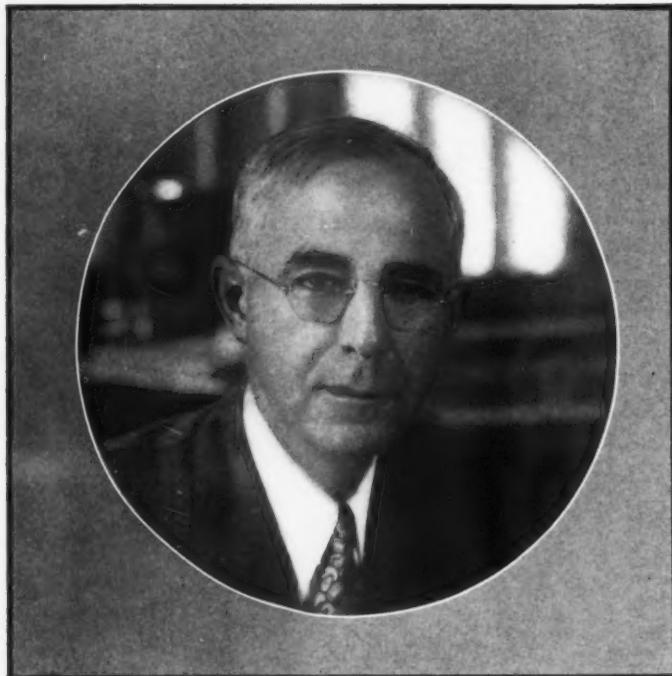
ALTHOUGH CLASSED as in a non-defense industry, the Wilson Sporting Goods Co. is making plenty of home runs in procuring materials and in maintaining production and delivery on its spring and summer baseball, golf, tennis, and track goods. It is in position to keep on scoring satisfactorily on its fall and winter lines of football, basketball, soccer, and "gym" merchandise. To your outside observer these achievements and prospects appear to be results of adhering to the following interwoven policies by its Purchasing Committee:

1.—Planning on new numbers a year in advance, but adjusting production schedules in view of changes in suppliers' promises on delivery.

2.—Working in close cooperation with friendly vendors of long-standing in supplying the company with materials to meet its special needs and laboratory tests.

3.—Buying ahead for requirements on the basis of information from such suppliers, plus that received from Wilson & Co., Inc., meat packers, of which the Wilson Sporting Goods Co. is an affiliate.

4.—Avoiding speculation in inventory, by measuring the stock in direct proportion to anticipated sales volume.



L. B. ICELY
President
and member of the
Purchasing Committee



P. W. SEYL
Treasurer
and member of the
Purchasing Committee

Mr. Seyl is also Treasurer of
Wilson & Co., the parent
organization.

5.—Substituting for aluminum, when defense priorities require it, other materials equally satisfactory for the weighting of heads of the woods so as to secure perfect swinging clubs.

6.—Being prepared, as the defense program affects supplies, to meet the situation through innovations available from modern technology's development of materials.

7.—Refraining from blitzkrieg price-increases that would foster inflation.

8.—Having it in mind for the future, if need be, to ask for priorities on such a "critical" material as steel in the relatively small quantities required by the company, in order to keep employees at work and thereby to add a bit to conditions favorable to financing national defense.

These are the general points derived by the writer from concrete cases given by F. J. Bowman, Vice-President and Chairman of the Purchasing Committee, when interviewed for PURCHASING.

"In this fast-moving world, what we are doing is not sensational, and what I say now may look somewhat strange by the time it gets into print," said Mr. Bowman. This was in interviews in April at the confusing time when Hitler's huge forces had overwhelmed Jugoslavia but were being held off on the battle line in Greece by the British-Greek armies, and the people of the United States were considering the

question of convoys for ships carrying supplies across the Atlantic for aid to Britain under the lend-lease law. So Mr. Bowman's characteristic reservation was entirely reasonable. But whatever comes, the details he gave are illuminating.

What Is Non-Defense Industry?

Like others in its field, the Wilson Sporting Goods Co., is in competition for supplies with companies either serving the national defense directly or dealing in food, clothing, or other necessities of life. It cannot count on much help from priorities. It has not had any of the educational orders placed in recent years by the Army Ordnance Department. Its equipment is not considered suitable for conversion to war industries. True, its technical men and those of three leading competitors did recently prepare for the Quartermaster Corps specifications, on a quality basis, for 63 kinds of athletic supplies, for army camps. And it has been awarded some Government contracts, for example, orders for catchers' masks, boxing gloves, and volley balls.

A case might be made out for sporting goods manufacture as essential to building up the nation's man power. "Published figures show that 40% of the men called in the present draft couldn't pass the physical examination," said Mr. Bowman. "In the World War the figure was 20%."

Major John L. Griffith, commissioner of athletics for the Big Ten Conference, finds that the universities, instead of curtailing their athletic programs, as in the last war, are planning to keep them going full tilt, both inter-collegiate and intramural. Next fall 5,000 colleges and 17,000 high schools will need sports supplies in volume. This summer, men making up the two markets for golf clubs, bags and balls—those playing at country clubs and those at fee courses—will be out driving, approaching and putting, to get their minds off the war and at least to get good physical exercise. But the fact remains that the manufacturers concerned are in a non-defense industry.

A Sizable Purchase Program

The section of the sporting and athletic goods industry producing golf, tennis, baseball, football, basketball, and boxing goods turned out in 1939, according to the Census of Manufactures, products whose value, at prices charged by the manufacturers, aggregated \$32,030,009. For this it bought, according to an estimate derived from the census report, materials, supplies, fuel, electricity and contract service at an expenditure of about \$13,300,000.

A year's purchases of the Wilson Sporting Goods Co. run to about \$4,000,000 for materials to go into manufacture and about \$500,000 for supplies. Major purchases are: Leather, \$1,000,000; wool yarns, \$350,000; army ducks and other cloths, \$300,000; steel tubing, \$500,000; iron forgings, \$100,000; wood heads, \$100,000.

The leather includes sheepskin, cowhide, horsehide, and steerhide. Besides the army ducks, the cloths include whipcords for football and basketball uniforms and flannels for baseball uniforms. The forgings for heads for the golf irons and the steel tubing for club shafts are bought in the rough and then ground and polished in the company's factories.

The plants are in five cities. These with their respective numbers of employees and products are: Chicago—850 employees: golf clubs, athletic clothing,

leather goods—such as helmets for football and baseball, and gloves for boxing; Buffalo—125 employees; golf bags; Schenectady—200 employees; baseballs and soft balls; Kansas City—200 employees, and Boston—75 employees; athletic clothing.

Besides this the company has 27 sales branches serving 5,000 dealers, including golf "pros" and retail stores, and also selling to the schools.

Centralized Buying Organization

The principal purchasing for all the plants and branches is done at the general offices and largest plant, in Chicago, at 2037 North Campbell Ave., on the northwest side of the city some six miles from the headquarters of the parent company in the Union Stock Yards on the south side.

In its issuance of catalogues, in its production for delivery according to the catalogues, and in its engineering development back of that, this company, and consequently its Purchasing Committee, has to do much long-time planning. The catalogue on baseball, golf and tennis for this spring and summer season was put out on January 15. That for the next fall and winter football, basketball, gymnasium, soccer activities will appear in August.

There is a March-July peak or plateau in the spring and summer golf selling, but production has had to start six to eight months before then. Likewise, production for the early fall selling has to start many months in advance. The new models of golf and tennis equipment for a given summer are worked out by the Engineering Development Department and checked on for corrections by the sales committee a year earlier.

All this even in ordinary times, and especially in these days when a non-defense industry must patriotically yield to defense industries and their priorities, puts complex problems up to the Purchasing Committee of the Wilson Sporting Goods Co. The members of that committee, besides its chairman, Mr. Bowman, Vice-President, are L. B. Icely, President of the company, and P. W. Seyl, its Treasurer, who is also Treasurer of Wilson & Co., Inc. These three also are the company's executive committee.

The outstanding policy of this purchasing committee is to place heaviest reliance on the salesmen of companies with which the Wilson Sporting Goods Co. has long maintained close relations as sources of supply. In this the committee gets its information in two ways. Much of it is by interviews which Mr. Bowman has with salesmen. A great deal comes through interviews which the salesmen have with the plant superintendents, especially the superintendent of the Chicago plant. The committee decides on what and when to buy, and the detail work of placing the orders is handled by L. W. Harrington, General Merchandise Manager, whose department also purchases the operating supplies. As to these, incidentally, the company so far has had no difficulty about obtaining its requirements.

Prominent among the factors enabling the Purchasing Committee of the Wilson Sporting Goods Co. to know just what its products must withstand in actual use is the counsel of a very complete staff of field-testing experts, such as: Ellsworth Vines, Don Budge,

Alice Marble, Eleanor Tennant, and Mary K. Browne, in tennis; Gene Sarazen, Sam Snead, Ralph Guldahl, Johnny Revolta, Patty Berg, and Helen Hicks, in golf; and also leaders in football, baseball and basketball. An incidental factor is found in the golf experiences of the members of the Purchasing Committee. Mr. Bowman is president of the Sunset Ridge Country Club in Winnetka, Mr. Icely plays at Knollwood in Lake Forest, and Mr. Seyl at Beverly. Mr. Bowman, moreover, had a youthful experience in professional football as guard, tackle, and fullback at Kansas City. Besides, for the present situation it appears to the writer that Mr. Bowman's observations and experiences in the last war, in which he was an instruction sergeant in the Field Artillery, are proving valuable.

Problems of Materials

"So far the only material on which we have been denied supply because of a priority for a defense industry is aluminum," said Mr. Bowman. "A year ago we had anticipated our requirements by six months. But we have placed some orders on which we are not going to get delivery. The representative of the company supplying us has notified us that it would not be able to deliver on account of a priority ruling. As you know, aluminum is in the list of materials rated by the Army and Navy as 'strategic.'

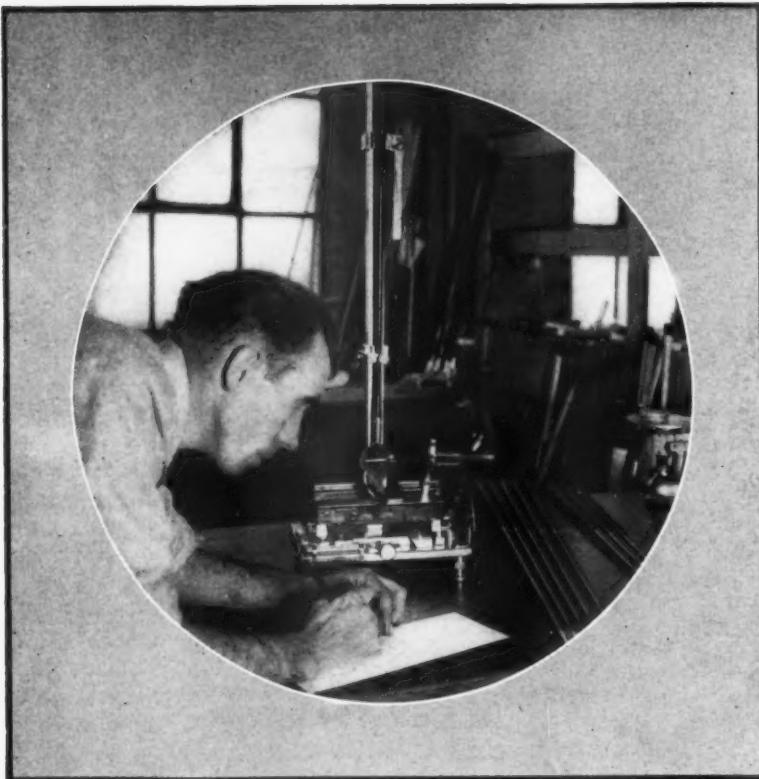
"However, this is worth mentioning only as an illustration of principles and practices. The amount involved in our case is not large; our purchases of aluminum run to less than \$10,000 a year."

With a laugh Mr. Bowman added: "Not having



Weighing and checking the stiffness of a steel shaft.

The swingweight of the club is an important factor.



The loft of iron clubs must be extremely accurate.

Fitting the sole plates to wood heads.



aluminum wouldn't mean closing the factory." He continued:

"We use it in two ways. One, the minor, is for aluminum heads for putters. But with 1,400 kinds of putters available, the golfers will have to get along without new putters with aluminum heads. The other way is for sole plates and weighting of wood club heads.

"What will we do?" Well it's our business to build perfect playing equipment, for instance as to the texture of sole plates and the weighting of club heads. This is our only object, and we do not feel that we are bound by any specific materials. Incidentally it happens that we have a new method of weighting club heads which is making a hit with discerning golfers.

"As to brass, which we use for sole plates on some of our clubs, so far there has been no delay in its delivery. Brass is not yet defined as among those materials in domestic production of which there ordinarily is enough for all but of which in view of defense demands there may not be enough. If the time comes when there is a limitation on brass, you can rest assured our laboratory will take care of the situation. We can adjust."

Cooperation with Suppliers

An outstanding illustration of this company's adjusting to the necessity of ordering further in advance than in ordinary times has occurred in reference to "army duck" cloths, whipcords, and webbing. These materials are used for football and basketball pants, but they are also used for army officers' uniforms and for tents. "We used to get delivery in two months after placing orders, but now we get six months delivery," said Mr. Bowman. But suppliers posted him on that in time to place orders to meet production schedules.

A most striking example of the way in which close relations with vendors who have developed materials exactly to meet special requirements of a manufacturer,

help out in these times, is found in the purchases of leather by the Wilson Sporting Goods Co. For fabricating baseball gloves, football and basketball covers and linings, and for golf bags, it buys sheepskin, cowhide, horsehide, and steerhide leathers. The parent company, Wilson & Co., Inc., the meat packers, originally went into the manufacture of athletic goods through the Wilson Sporting Goods Co. in part to provide an outlet for hides. However, the intricacies of tanning and the variety of requirements for leather in sporting goods are so great that the Wilson Sporting Goods Co. does not confine its purchases to tanners who get their hides from Wilson & Co.

Any reliable tanning concerns, and especially those buying hides from Wilson & Co., Inc., are privileged to submit samples to the Wilson Sporting Goods Co. Reciprocity goes that far. But for present and prospective requirements for leather the Purchasing Committee relies on the vendors who, whatever their source of hides, have hitherto delivered the materials to meet its special needs. Perhaps that is one reason why Edward F. Wilson, President of Wilson & Co., Inc., announced to stockholders, on February 18 last, that its subsidiaries, including specifically the Wilson Sporting Goods Co., "are operating satisfactorily."

"Orders for deliveries of leather have customarily been placed from three to six months in advance," said Mr. Bowman. "You have to allow the tanners that much time to sort the skins and go through the tanning processes, because we use only selected types. Although hides are listed as 'strategic' material, so far that three-to-six months delivery on leather has not been extended. But if ever it must be, our suppliers will let us know enough in advance to give them the time they need to deliver so that we in turn can deliver for our seasonal markets."

"What about baseball bats and the recent runaway market in lumber due to government buying for cantonment construction?" In answer to this question, Mr. Bowman gave a good illustration of the practice

on the part of a vendor of building up supplies for the special requirements of his customers years in advance of their orders. He said: "Good baseball bats are made from special lumber from the north woods and Canada. It is ash. The concern supplying us gets it from four to six years in advance and lets it season."

No Commodity Speculation

Woolen yarn, used by the Wilson Sporting Goods Co. in knitting sweaters and in winding baseballs, is causing a perplexing problem. The price is up decidedly. Mr. Bowman told about it this way: "We can get all the wool yarn we want, but the price is high. The government has specified domestic wools, and there is not a world shortage. With the market way up there it would be foolish to cover for more than 90 to 120 days."

But the management of this company takes pride in sticking to its knitting—to refraining from speculating in inventory.

"We don't gamble on the commodity market," said Mr. Bowman. "We are not in the commission business. If we were, all we would need would be a small office, instead of factories and sales offices. We are in the sporting goods business."

Quality Standards Are Maintained

Another important part of the policy of the Purchasing Committee of this company is put this way by Mr. Bowman: "We don't shop around for prices." This is explained by the imperative necessity of having quality in athletic clothing and in sporting "weapons and missiles" if they are to stand up under the wear and tear and battering they get in the hands of men and women, boys and girls of this generation. Mr. Bowman pointed out that even in the face of the upsetting conditions of a defense-production market, the various materials supplied to this company are subjected to rigorous laboratory tests before they get the use tests on the playfields.

Some of these laboratory tests are for color fastness in yarns, tensile strength of various materials, and textures of leathers. Golf balls are subjected to cutting tests and to tests in a driving machine. Such tests are continued in these times.

Mr. Bowman, in the course of the writer's interviews with him, took down from the top of a filing cabinet in his office two balls that had recently been subjected to testing. One was a basketball which had been put through a machine that buffeted it twenty times a minute. It had been in this machine for eleven hours, the equivalent of three years' playing time on college or high school field-house floors. Another was a football concerning which Mr. Bowman had secured an unusual supplementary testing. This was to have the football kicked around by caddies at his golf club throughout a season. Mr. Bowman bounded these balls on the floor. To the writer they looked tough and lively.

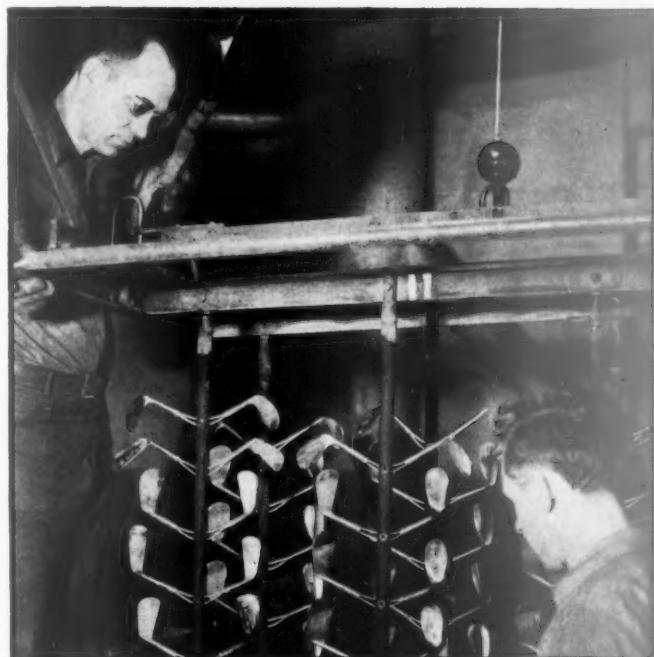
On cotton purchases, as well as on other materials, the Wilson Sporting Goods Co. receive information

from George Eckhouse, General Purchasing Agent of Wilson & Co., Inc. Purchasing agents of manufacturing companies not affiliates or subsidiaries of others may contend that they are not so favored. But here the parent company, like the affiliate, gets its information on prices and delivery prospects chiefly from suppliers with whom it has established close relations. In building up such relations any buyer has an opportunity to appraise the temperament and judgment of his suppliers, so as to know whether their respective warnings or promises are over-pessimistic or over-optimistic.

Price Policies

Through its outstanding policy of keeping in close touch with reliable vendors the Purchasing Committee of the Wilson Sporting Goods Co. has its ear close to the ground for impending changes not only on delivery dates but also on prices. It has no escalator clauses on its purchase contracts, but it pursues a policy of safety first as to price change. That, notwithstanding its program of careful planning, is the case at all times. It is so, even more emphatically in days like these. While not announcing any suggested prices to ultimate consumers, all

Continued on page 134



Rough grinding, polishing and buffing.

The iron heads are chromium plated.



"... and don't promise any deliveries
before April, 1942."



By ANDREW H. PHELPS

General Manager, Purchases and Traffic
Westinghouse Electric & Manufacturing Company

TODAY'S PURCHASING POLICIES

THESE are times when everyone who is really interested in the welfare of his country is spending energy in productive thought in assisting the Government in what it is endeavoring to do.

Engineering ability is at a premium. The best efforts and genius in the engineering profession must be used if we are to develop maximum use of our natural resources in this great emergency. Since demands which tax raw material supplies to the utmost are prevalent, we are decidedly in a seller's market. This, naturally, creates many problems in purchasing.

What could be more fundamental to you and me than the relationship between an electrical manufacturing concern and the mining industry? For without your products we could not exist and without the market furnished by manufacturing organizations such as ourselves, you would find it difficult to exist.

Consequently, it is desirable for you to have my viewpoints and for me to have your viewpoints so that we may secure maximum cooperation and results from our combined efforts. As the chief purchasing officer of my company it is my responsibility not only to supervise the routine work of supply which is so highly important today, but also to build a real plan for future supply, having in mind the national interest and that of my company. Therefore, I should like to review with you the purchasing of a few of the more particular materials supplied to us by the mining industry under present-day conditions.

Address before the Mining Club, Inc.,
New York City, April 8, 1941.

Westinghouse purchases annually from \$75,000,000 to \$100,000,000 in materials, supplies, and equipment. In this year 1941 the bill will be well in excess of \$100,000,000. With unfilled orders of \$274,000,000 to which is added each month a percentage of the amount of orders placed on the books—\$40,000,000 to \$50,000,000—it is apparent that our purchases will be expanded considerably over the coming year. Our company has consistently spent from 34% to 38% of each dollar received from sales for equipment, materials, and supplies. This is the largest item, next to the payroll.

In the daily purchasing program a great variety of items are procured. The breadth of purchases for Westinghouse is necessarily greater than in most companies because of the diversification of the products we manufacture. Our task is therefore one of specialized knowledge to which each one of our several hundred people must contribute. In each of the twenty-one plants which this company operates, the purchasing problems are different in detail but similar in a broad aspect. By that I mean that at each plant the materials to be purchased may be very different, but the problems to be solved are very similar—keeping a steady and adequate supply of materials flowing into each plant. The knowledge and ability contributed by each man in each plant is correlated and brought into effective operation through the office of the General Manager of Purchases and Traffic and the experts there employed.

To aid you in understanding some of our problems, may I develop one or two items to show the com-

plexity of our purchases. The materials which we purchase and use in greatest quantities are iron and steel, including castings and forgings. These designations seem simple when you mention them as I have mentioned them here, but when you put them under Westinghouse scrutiny for our use in manufacturing, you will find that they are bought under more than 650 specifications. Every one of these specifications is designated to secure some refinement, so as to provide a more suitable material from which our product is manufactured.

The value of steel purchased during 1941 is a substantial portion of our total purchases. In straight carbon steels, our purchases vary from razor blade thickness—Swedish flapper valve steel—to eight inch—low carbon steel plate; and include a multitude of specifications. The Swedish flapper valve steel is bought at a high price per pound, each sheet is wrapped in expensive materials, shipped with the greatest care, and stored in a vault after receipt.

Exacting Specifications

In the realm of alloy steels, our specifications are even more widely diversified. Among these may be mentioned turbine blade steel. In its final application this material rotates at a speed up to 6000 R.P.M. in a temperature that may go as high as 900 degrees F. A failure of a turbine blade might mean laying up a 50,000 kw. turbine for a period of one week to three months. Or a battleship might be put out of commission at a crucial time. Consequently, you can see that this steel must be manufactured under a rigid specification and must be right beyond question of a doubt. This turbine blade steel is purchased in bars. Each blade is made from a portion of one bar. Bars may run most any size, but quite often run as much as 30 feet in length and three inches in diameter. From a bar any number of blades up to, say, 30, may be made. These bars are sawed into blade lengths. A cross section is cut off each end of each blade section; these are polished, etched, and microscopically examined. Since there may be as many as 30 blades from each bar, this means there may be 60 samples to be examined per bar, and this must be done for each bar of each heat. These samples are made and examined by the steel company. They are then reexamined and approved by Navy inspectors, if they are for Navy use, before the material is shipped into our plant. Before we accept the material, we again examine these sections and approve them. These examinations are for grain size and structure so we may eliminate the possibility of metal creep.

Another item which will serve to illustrate a problem with which purchasing has to contend is heat resisting castings used in the interior of high temperature furnaces. These are high nickel, high chrome alloys, containing at least 50% nickel plus chromium. These are used virtually as cast to avoid any machining operations and are bought on chemical analysis plus only a visual inspection. On the other hand,

many of our castings must be radiographed or X-rayed before acceptance.

Steel is only one item in our manufacture. There are virtually thousands of materials that might be subjected to a similar analysis—for example, we purchase tungsten and molybdenum ores which we reduce to metal and roll, draw, etc., to make sheet, strip, rod, and wire. Our tests on these ores, for example, include not only chemical analysis but observation of the behavior of ore samples in our entire manufacturing process. Actual life tests are made on lamps made from the tungsten wire produced from the ore, before a supplier is approved.

Foreign Purchases Are Difficult

Each year we use 20,000,000 or more sapphire jewels, as bearings in our Newark Meter Works. We also require diamonds for dressing grinding wheels and for drawing wire.



Producers of minerals and metals need the outlets provided by manufacturing activity

During peace time less than 2% of Westinghouse purchases are imported. However, under the present trying circumstances, procuring even this 1% or 2% can become an intricate problem. For example, let me mention the case of jewel bearings, which Westinghouse uses to the extent of twenty millions or more per year. These jewels are largely sapphires, and may be either synthetic or bearing-grade stones mined in Montana. As you can see, this is domestic production. However, these jewels are not ground in this country, but are ground entirely in Switzerland. The material which is used is diamond boortz. This diamond boortz is largely produced from carbonadoes mined in Brazil. These are crushed to a great extent in this country for the preparation of industrial cutting tools, and a portion of the black diamond dust is then exported to

Switzerland to be used for grinding these jewel bearings. While Switzerland is not itself blockaded, materials passing to and from it must go through blockaded territory. You can readily see the complexity of this apparently simple problem.

This type of problem—that is, securing materials from foreign sources—has naturally been made very much more difficult because of the war in Europe. In addition, our own National Defense program has created a number of supply problems in certain strategic materials, and has posed to us broad questions of how best to conduct our purchasing in light of the emergency.

Full Use of Capacity

When it first became apparent that the Nation was launching into a major defense program, the Company made a survey of its existing facilities to determine how it could best serve the country in the



Manufacturing programs are dependent on a supply of raw materials from mining industry.

emergency. Our executives went to Washington and offered our services to the Government for the manufacture of electrical and other types of equipment needed in the defense effort.

It is natural, therefore, that Westinghouse was among the first to be used to capacity. Some other plants have not yet been able to contribute their full share to the National Defense. It is the determination of Westinghouse to help fill these plants to their capacity so that the existing manufacturing facilities of the United States will be used completely. This may make it unnecessary to expand and build excess capacity, which will be a burden on the entire American economy when the Defense effort is over. Consequently, every wheel in Westinghouse is turning, and every spot is filled with a worker.

We have placed many millions of dollars of subcontracted work to more than one hundred manufacturing concerns. In this way we will secure equipment and assemble it in time to meet promised deliveries. In many cases, we are even able to anticipate delivery times and thus aid the entire Defense Program by so doing. We have been able to place the twenty-one Westinghouse plants on a very efficient basis and find ways to accept orders, place them in our schedules and better our delivery times on new equipments needed for National Defense.

The Office of Production Management is staffed with men taken from industry, and has been organized to operate with American business to facilitate carrying out the National Defense program. In addition to the type of work which the War Industry Board accomplished, the O.P.M. is cooperating with other Government agencies to keep prices within reasonable limits. In my contacts at Washington with this

group, I have been impressed by the fact that these are men of the same high calibre and character as those in the War Industry Board of 25 years ago. They have had practical experience with the affairs which they now administer and are all imbued with the desire to exercise no more authority or control than is absolutely necessary. In part this desire is predicated upon the understanding that industry unhampered by excessive control, will do a better production job than if it is fettered by needless restrictions and red tape. This very sound attitude also emanates from a realization that control breeds control and priorities breed priorities; that if we embark on a course of getting things done by command we will wind up with complete regimentation. The O.P.M. is a great testimonial to the effectiveness of our free American system of developing and using the real business brains in a great emergency.

The efforts of our organization have resulted in total orders now on our books for the National Defense Program of \$180,000,000, plus a swelling tide of orders for electrical equipment of all types necessary to the equipping of plants for defense work.

Faced with increasing pressure for production when demands for raw materials were reaching unprecedented heights, Westinghouse did not attempt to buy up large inventories of strategic raw materials. At the end of 1940 our total inventories were less than they were at the end of 1937, although sales billed and unfilled orders were considerably larger than during the preceding year. Thus, we are handling a larger volume of production with less inventories during a period which is characterized by numerous difficult supply situations.

So far we have succeeded in operating on this basis without seriously jeopardizing our production, and it is my opinion that widespread application of priorities could be avoided if industry in general refrained from building up material stocks beyond immediate requirements. There are cases, however, which have come to my attention where scarce metals have been

Continued on page 148

PURCHASING FOR

THESE ARE THE MEN
WHO ARE HANDLING
THE BIGGEST BUYING
PROJECT IN HISTORY



**DONALD M.
NELSON**
Director
(Sears Roebuck
& Co.)

PURCHASES DIVISION
OFFICE OF PRODUCTION MANAGEMENT
WASHINGTON, D. C.



**DOUGLAS
MacKEACHIE**
Deputy Director
(Great Atlantic &
Pacific Tea Co.)

CONTRACT CLEARANCE



HIRAM S. BROWN
Assistant Director
(Radio Keith Orpheum
& Radio Pictures and
U. S. Leather Co.)
Harry Camp, Assistant

INDUSTRIAL AND
STRATEGIC MATERIALS



JOHN P. SANGER
Assistant Director
(U. S. Gypsum Co.)
Mark Merrel, Assistant
_____, Containers
C. E. Bertrand, Oil and Gas
_____, Coal
_____, Medical Supplies

SUBSISTENCE



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Assistant Director
(National Biscuit Co.)
Logan Morrill, Assistant
Gerrit Vander Hooning, Assistant
John Baxter, Canned Foods
J. H. Hamilton, Inspection
J. P. Johnston, Fluid Milk
Thomas Smith, Bread

PERISHABLE FOODS
SECTION

J. A. Martin, Chief
Erick Searle, Meats
A. K. MacKoy, Meats
Randolf Cruzen, Poultry,
Eggs and Dairy Products

Photographs of Mr. Brown, Mr. Sanger, Mr. Cunningham and Mr. Becker, OEM Defense Photos by Dixon. Photograph of Mr. Camman by Underwood & Underwood, Mr. MacKeeachie by Harris & Ewing.

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CONSULTANTS

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H. T. Lewis

C. I. Gragg

ARMY AND NAVY LIAISON

Brig. Gen. R. H. Jordan,
QMC

Rear Admiral Charles
Conrad (SC) USN

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Bruce Catton

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F. M. Folsom

Elmo Roper

R. T. Stevens

A. W. Zelomek

Transportation—

Karl Fischer

Warehousing—

H. D. Crooks

Labor—

Isador Lubin

Price Stabilization—

J. P. Davis

Agriculture—S. H. Sabin

Consumers—H. B. Rowe

Secretary—C. I. Gragg

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Paul Kelley, Assistant

L. C. Caldwell, Merch.
and Purch.

David Ovens, Store
Operations

F. P. Britton, Personnel
_____, Fiscal

M. R. Ketz, Accounting
Gerrit Vander Hooning,
Foods

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Asst. Gen. Counsel

Alexander Howes,
Assistant
Fairfax Leary, Jr.,
Assistant

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Assistant Director

(Gulf Oil Corp.)

C. A. Kelley, Assistant
W. A. Summerhays,
Lumber and Building Materials

E. F. Wesley, Laundries
and Supplies

J. B. Davis, Paints

L. A. Jones, Electrical and
Miscellaneous Supplies

CLOTHING AND EQUIPAGE



WALTER P. BECKER
Acting Chief

(J. C. Penney Co.)

Harold Florsheim, Shoes and
Leather, Textiles

PLANNING AND COST ESTIMATING



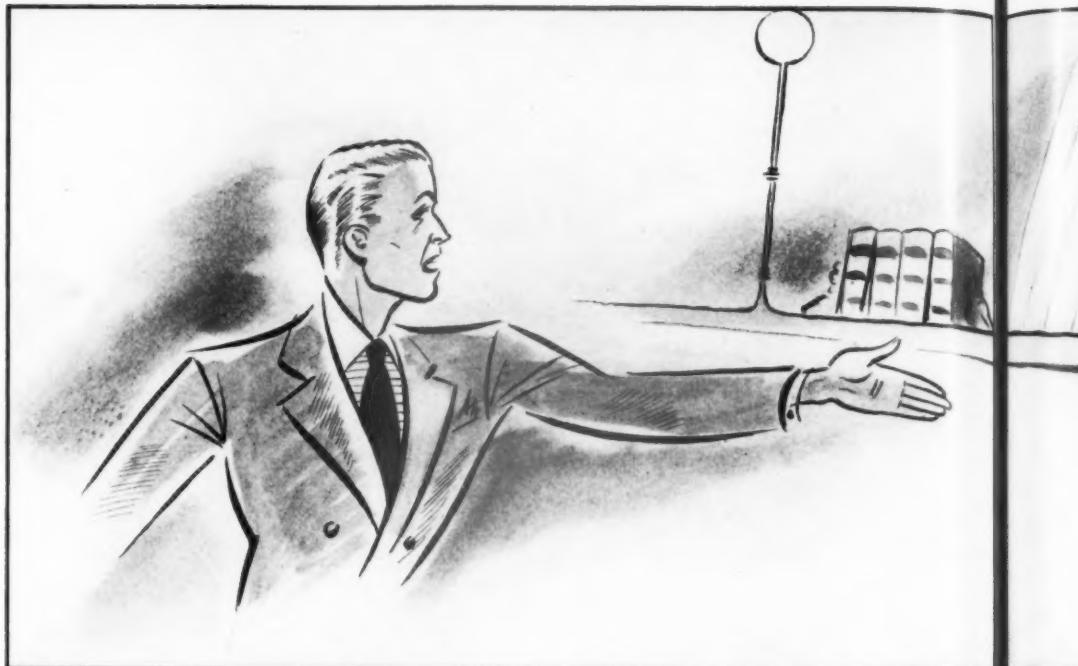
ERIC A. CAMMAN
Chief

(Peat, Marwick, Mit-
chell & Co.)

Walter Shorter, Tariffs
M. M. Messick, Tariffs

The Division of Purchases, O.P.M., has sought out men of experience and skill in purchasing to conduct the important work of procurement for defense. Among its personnel will be noted three past presidents of the N.A.P.A.—Clark, Jones and Kelley; three holders of the Shipman Medal for Distinguished Service to Purchasing—Clark, Jones and Lewis; and the program chairman of the 1941 N.A.P.A. Convention—Sanger.

When buyer and seller go to court, the Law decides on the basis of the written contract. What is left out of the agreement may be just as important as the clauses that are included.



Purchase Contracts Mean

A PURCHASE order, contract or sales agreement signed by the Purchasing Agent and accepted by the seller becomes a document the interpretation of which may become the basis of a dispute eventually settled in court. Since the normal intent is to procure the product desired and not get involved in legal tangles, most disagreements are settled by discussion and negotiation. However, when such means fail and the case goes to court, the things that count the most are the purchase agreement and the Uniform Sales Act. The provisions of this Act will apply to the extent they are not set aside by the stipulations of the purchase agreement.

In matters involving large sums, the preparation of the purchase agreement is ordinarily given great care, and the document may be detailed and long. Most companies have given thought to the preparation of their purchase order forms. Some are simple with no printed restrictions, while others display many clauses of conditions which may or may not be appropriate to many purchases of routine or repetitive nature. Unless there has been a true meeting of minds, printed detail will not always prevent subsequent disagreement. Even if there was real agreement at the time of signing, one party might change his mind subsequently, and a row can then start as to what the agreement means.

An agreement presented by either buyer or seller should not be signed without carefully reading all the provisions, particularly where the agreement has been standardized

and has many printed clauses. These forms are under more or less constant revision, and it is not safe to assume the general appearance is indicative that the clauses are the same from contract to contract. To read them may be tedious, but that is an important part of a Purchasing Agent's job which should be done. Otherwise the Purchasing Agent may find he has bound his company to an agreement, the provisions of which will be surprising and undesirable from the buyer's viewpoint.

The Proration Clause

One of the clauses which usually appear in the sales order agreements prepared by companies marketing chemicals, dyestuffs, pigments, etc., reads "Monthly deliveries in excess of the prorated amount of the maximum quantity of each item sold shall be optional with the seller," or "The Seller reserves the privilege of not shipping in any month more than the prorated amount of the maximum quantity," or "The privilege of shipping no more in any month than the pro-rated amount of the entire quantity sold is reserved by the Seller."

Such clauses are obviously for the benefit of the seller, who naturally wants to produce and sell approximately equal monthly quantities. A further purpose of the vendor is to prevent the acquisition of more than the quota quantities in any month just preceding a price rise. Most of this kind of sales agreements cover quantities estimated as the buyer's consumption



"The fine print doesn't mean a thing."

By
F. ALBERT HAYES



"The previous order is irrelevant"

Exactly What They Say!

during one year, but the price is subject to adjustment each quarter.

If a buyer's requirements can be properly met by approximately equal monthly shipments of the purchased articles, there may be some mutual advantage in such an agreement, but it fails a buyer who has a seasonal business during which the quantities estimated as the year's requirements may be needed in one quarter, with insignificant demands during the remaining nine months. If he has signed a sales agreement with such a clause, his disproportionate needs for the producing quarter are satisfied only by grace of the seller's permission. He may not get it—and just what alibi is he then going to give his production department?

Don't believe the assurance of the vendor's representation that such restrictive clauses do not mean anything; that they are there as a gentleman's agreement, and that the buyer's requirements will always be supplied as ordered. That clause means exactly what it says—and there may be times when the vendor will apply it; maybe reluctantly, but apply it nevertheless. It has been done. It would be better to delete the clause and agree in writing that the buyer's requirements would be furnished as ordered; or it might be better not to have a contract. The buyer should study and know what that clause means before relying too firmly on a seller who insists on retaining it. If the contract is for mutual assistance, the following clause might be acceptable—"Ship-

ment to be made as ordered in quantities not to exceed Buyer's consumption estimated for one month following specified delivery date, except by permission of the Seller."

That would supply a buyer his requirements for actual consumption when needed, and prevent the accumulation of an inventory in anticipation of a price rise unless the seller gave permission. If the contract was made for quantities honestly believed commensurate with the customer's probable requirements, that clause should be helpful and cover the situation.

Vendor's Order Forms

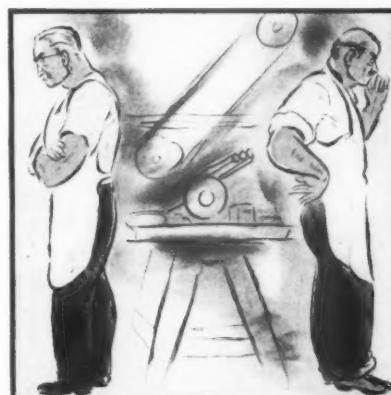
The preference of vendors to secure the buyer's signature on a sales order form rather than on a purchase order is understandable in many instances, although the almost unfailing insistence on such a document is not always justified or desirable under every set of circumstances.

Trade organizations urge the practice of securing the buyer's signature on the seller's order form and in general vendors follow the idea without undue urging. An excellent presentation is made by the New England Shoe & Leather Association in a bulletin "Some Legal Stop and Take Care Signs for Shoe manufacturers." It reads as follows:

It is good practice to secure the buyer's signature on the seller's order form.

This will usually include printed terms of sale which are satisfactory to the seller.

There are strong reasons for the sell-



"It isn't in the contract."

er's preparing and using an order or contract form which has fair terms of sale printed on it. The advantages from so doing include:

- Avoidance of unacceptable terms on the buyer's forms.
- Opportunity for the seller to adopt fair practice standards relative to returns and cancellations.
- Protection against claims of representations, inducements or warranties made by salesmen outside the contract. To secure this, the seller should incorporate carefully drawn protective language.
- Seller can protect against delays due to causes beyond his control.
- Seller can obtain a binding contract by merely accepting the order as received on the seller's form. When the buyer's order form is used the seller frequently tries to protect himself by using an acceptance form which contains provisions which are not in the order. Such a purported acceptance does not make a contract unless and until the buyer accepts the changes. Unless the buyer does accept them, the seller, if he manufactures the shoes described in the order, will be making shoes which no one is bound to take.

Sellers should not accept the buyer's order form without reading and understanding all the provisions printed on the face and reverse of the form. Fine print may be just as binding as poster capitals. Otherwise—

- Seller may be agreeing that worn shoes may be returned regardless of date.
- Seller may be barred from assigning the account.
- The law of a state other than that where the contract is made and where the seller may wish to bring suit, may control the interpretation of the contract.
- Seller may be obliged to provide a bond as a condition of suing in certain courts.
- Time of delivery may become of the essence and the seller have no rights if delivery is a few days late and the buyer refuses the goods.

—Seller may be agreeing to unreasonable credit terms. In most cases the buyer does not intend to ask for unreasonable terms of sale and there are doubtless cases in which the buyer is justified in asking for stringent protection, but when an elaborate stock form is tendered to the seller it should be satisfactory to him and suitable to the particular case.

An illustration of the insistence often displayed by sellers on obtaining the use of their sales order form as the legal document is shown by the following incident.

A specification for a certain equipment had been prepared and was put out for bids. Proposals were required on a specified form which, among other things stated that the successful bidder would sign a contract to perform the work if his proposal was accepted or forfeit the certified check deposited with the proposal. The award was made, the buyer signed the contract and sent it for execution via the salesman to the vendor officials. The salesman returned with a sales order form which stated that it was the only document of agreement, and which contained clauses incompatible with the conditions of the proposal.

There was no desire to recourse to law, for the buyer wanted the equipment, not the vendor's certified check. Therefore the clauses in the sales order form which were incompatible with the contract, were deleted and the vendor's sales order was made a part of the contract, by reference in both documents. This suited the vendor and he proceeded to fill his contract to the complete satisfaction of the buyer. The buyer still doesn't understand

the magic of the vendor's agreement versus the buyer's contract under such circumstances.

Labor vs. Labor

The kind of labor to be employed on a contract requiring installation of purchased equipment is now a subject which is complicated by the division within labor. Conditions may change between the time of signing the agreement and performance of the work, or the interpretation of the contract may be revised by one side or another as conditions change. Sometimes it is hard to determine just what was in the minds when the agreement was made, and yet it is certain that the language used in the document will be considered by the court as expressing the meeting of minds. A case in point concerns the installation of power equipment in a plant which had been completely organized by craft unions for many years.

The specifications read, "It is the intent of these specifications to provide for all *labor*, tools and materials required for the delivery and erection of two new water tube boilers.—Before commencing work on the contract, contractor is expected to personally visit site, making himself familiar with *conditions, labor market, etc.*" In addition, the contract of which the specifications and proposal became a part, read, "Should the contractor at any time refuse or neglect to supply a sufficiency of properly skilled workmen—the owner, shall be at liberty—to provide such labor—and to deduct the cost thereof from any money then due or thereafter to become due to the contractor under this contract."

After the contracts were let and before work started, the buyer was visited by labor delegations of the various craft unions *outside* the shop organization who endeavored to find out the kind of labor that was to be employed on the new job. They were referred to the various contractors, all of whom but one used craft union labor. Labor trouble was experienced only in the installation of the boilers, which work was started by the highly skilled group of employees furnished by the boiler manufacturer, but who were not members of the craft union. Trouble did not come from the various unions represented in the buyer's shop, but from the local boiler makers' union who insisted on the hiring of local union employees. The threat was made that the local boiler makers' union would appeal for support to the other unions in the shop.

The buyer then insisted the vendor supply local union men for the job, but the vendor stated that the buyer would have to pay the additional cost. Work stopped on construction, but as the extra labor cost bore such a small proportion to the total job, and as delay was costly, local union men were supplied and the extra cost shared by seller and buyer. The contract obviously was not specific enough. The vendor thought he could use non-union erectors, and the buyer thought the seller could so use them if he could get away with it. Failing that, the buyer thought it would be the vendor's headache; but it didn't work out that way.

Labor clauses should be specific and realistic. They are worthy of your best thought.



"We didn't pay much attention."

Some things would be ludicrous if not serious. A machinery salesman sold a replacement part for certain equipment with the understanding that the shaft was to be longer by a specified length than the shaft on the original equipment. A sketch was furnished, and a purchase order sent detailing the exact sizes. The replacement parts came in just like the original equipment and when the buyer asked for an explanation, the following rather astonishing letter was received:

"Replying to your letter of—date—pertaining to your order (number) in regard to cylinders shipped against this order as being too short. It is true that your order specified a length of 54 $\frac{1}{2}$ " but we did not pay very much attention to this as we have made cylinders of the same style on previous occasions working to a sketch sent us from your factory and figured if there should be a change we would either receive another sketch or else the order would have some definite reason for making the change as we figured there was no complaint on the previous cylinders, so we assumed there might have been an error in the measurement especially as there was so little difference between the length that we have been working to and the length required on the order—"

This did not involve any recourse to law. It merely illustrates what can happen to your orders, even when placed with people with whom you have done business before.

In two of the foregoing illustrations detailed contracts were used which together with the specifications and proposals made purchase documents of considerable length. Each one had been carefully prepared by different consulting engineers with special qualifications for the particular job and with an excellent record of successful installations. The documents had been reviewed by legal counsel, but in spite of that, disagreement occurred as to the interpretation of the contract requirements.

Over-Simplification

There can be over-simplification of a purchase agreement, for a simple purchase order form without restrictions written in to fit the particular transaction may bring trouble. It is particularly desirable to incorporate suitable clauses into purchase order forms where that form is used as a "blanket contract" against which shipments are authorized by separate purchase orders. Failure to make reference in that blanket order to prior business on the same article, from the same vendor, sets up restrictions which will hamper the buyer in case of dispute. Also failure to record the use to which the article is being put; or failure to refer to specifications, or uniform quality; all react against the buyer if a dispute arises which is settled in court. An example of the trouble which may arise under such circumstances is noted by the recent decision of the Supreme Court of a state which reviewed exceptions brought before it from a lower court.

The suit brought by the seller involved sandpaper for which a blanket order had been placed but for which the buyer refused to pay or receive. The suit brought in counter action by the buyer was for damages caused by the delivery and use of non-uniform sandpaper on the last part of prior orders for the same material, and which was the basis for refusing



"The last lot isn't as good as the first."

to take in the goods covered by the blanket order referred to above. Both sides invoked the Uniform Sales Act to establish the validity of their respective suits and also as a defense against the claims made.

There was no question of the validity of the buyer's order as set forth on the usual purchase order form of the company, and signed by the Purchasing Agent. That was the document in question and the case was decided on the basis of what that order said, and its interpretation under the provisions of the Uniform Sales Act.

Several elements had entered into the selection of this seller as a supplier of the buyer's partial requirements on this item. First, outside of the saving in first cost, it seemed to be the only source of a competitive price, and the Purchasing Agent thought that it might secure reduction of the prices from domestic sources. Second, the skill and experience of the salesman in connection with the use of the sandpaper for buffing leather was regarded as a potential asset to be used as desired by the operating force. Third, the seller was of good reputation, good financial standing, and represented a substantial foreign company.

The price of abrasive paper used for buffing leather usually is the same from whatever domestic source. Consequently when a foreign product was offered in 1933 at a price much lower than domestic products, the subject seemed worthy of investigation. The salesman of the United States jobber of the foreign product told the buyer that several large tanneries used it, and that with the addition of the buyer's account there would be a good basis for maintaining a common stock for all the users. The paper was represented as being made in this country, shipped abroad for coating with abrasives, and then returned to the United States. After this transportation, they were still able and willing to sell it at a price $\frac{1}{3}$ lower than domestic brands.

The salesman represented himself as a man of long experience in the sandpaper business and particularly familiar with the requirements of a tannery for the successful buffing of leather. The buyer believed and acted on that information and arranged to have samples submitted so that the superintendent could determine which grades, if any, would be satisfactory. Two grades were selected by the superintendent and small experimental orders were placed; the material was received and used.

Two Orders Are Placed

These were followed by a blanket order in May 1934 for sandpaper at a delivered price of \$6.80 per 50 yard roll 24" wide, to be taken as ordered without time limit. The order was filled in about two years, a period longer than contemplated by the buyer, but without adverse comment by the seller. A second blanket order dated April 1936 was placed at \$7.34 per roll but with the proviso that the goods should be ordered within six months on separate orders. This order was placed at the solicitation of the jobber who stated that there had been one price advance and that another was imminent.

After the second blanket order was placed in April 1936, the tannery informed the purchasing agent that

Continued on page 106

PROGRAM OF THE 26th

NATIONAL ASSOCIATION

STEVENS HOTEL, CHICAGO



F. J. HEASLIP
Fairbanks Morse & Co.
General Co-Chairman



A. V. PLEASANCE
Montgomery Ward & Co.
General Co-Chairman



J. P. SANGER
U. S. Gypsum Co.
Chairman—Program



H. M. ROWLETTE
Whiting Corp.
Chairman—Local Program

L. R. SEEN
Borg-Warner Corp.
Secretary



"A-1-a Purchasing Conference"

General Outline

Monday Priorities
Tuesday Prices
Wednesday The Vital Contribution
 Purchasing Can Make
Thursday Sound Policies for the Future

MONDAY, MAY 26

PRIORITIES

Morning Session

WELCOME by Walter H. Hallsteen, Purchasing Agent of the Ilg Electric Ventilating Co., Chicago; Chairman of the General Convention Committee; and formerly Vice President of the N.A.P.A.

"TODAY'S PROBLEMS," by George E. Price, Jr., Purchasing Agent of the Goodyear Tire & Rubber Co., Akron, and President of the N.A.P.A.

"THE CONVENTION'S ANSWER," by John P. Sanger, Vice President in Charge of Purchases, United States Gypsum Co., Chicago; Assistant Director of Purchases, Office of Production Management, Washington; and Chairman of the Convention Program Committee.

T. J. ANDERSON
Acme Steel Co.
Chairman—Reception

E. L. VAN VECHTEN
United Air Lines
Chairman—Transportation

ANNUAL CONVENTION

OF PURCHASING AGENTS

MAY 26-29, 1941

"PRIORITIES," by E. R. Stettinius, Jr., Director of Priorities, Office of Production Management, Washington.

(This feature of the program will be based on questions submitted in advance and from the floor of the Convention, providing the answers to specific purchasing problems. A "question asker" will present the inquiries to the speaker, and he will reply. The same procedure will be observed wherever practicable throughout the program, in place of set addresses.)

"THE NON - DEFENSE INDUSTRY'S PROBLEM."

(Questions and answers)

Luncheon Meetings

Committee and Group meetings.

Afternoon Session

"SUBSTITUTION POSSIBILITIES," by Col. George S. Brady, Chief of the Substitute and Secondary Materials Section, Office of Price Administration and Civilian Supply, Washington; Author of *Brady's Materials Handbook*.

(Questions and answers)

"WARTIME EXPEDITING," by W. E. Bittner, Purchasing Agent, Diamond Alkali Co., Pittsburgh.

T. H. TREDWELL
W. C. Ritchie & Co.
Chairman—Golf

WALTER ARMSTRONG
American Nat. Bank & Trust Co.
Chairman—Ushers

H. C. BAUER
Revere Copper & Brass Inc.
Chairman—Inform-a-Show

W. H. HALLSTEEN
Illg. Electric Ventilating Co.
General Chairman



H. L. BRUEGGEMANN
Acme Steel Co.
General Co-Chairman



H. H. WISE
Scovill Mfg. Co.
Treasurer



R. F. STILES
Stewart Warner Corp.
Purchasing Agent





J. W. KLEDER
U. S. Sanitary Specialties Corp.
Chairman—Registration



T. R. WILLARD
Marshall Keig, Trustee
Chairman—Hotels



A. G. PEARSON
National Broadcasting Co.
Chairman—
General Entertainment



W. J. AUBURN
The Gerrard Co.
Chairman—Publicity



R. L. SINGLEY
Caspers Tin Plate Co.
Co-Chairman—Golf

Evening Session
Dinner Discussion Forum

"HOW TO WORK WITH DEFENSE AGENCIES," by Donald G. Clark, Director of Purchases, Gulf Oil Corp., Pittsburgh; Assistant Director of Purchases, Office of Production Management, Washington. Mr. Clark will be supported by a panel of qualified Government representatives from the various defense agencies to answer questions. There will be no set address.

Committee and Group meetings.

TUESDAY, MAY 27

PRICES

Morning Session

"UNITED STATES PRICES—THE PRESENT SITUATION," by Frederick J. Heaslip, Purchasing Agent, Fairbanks Morse & Co., Chicago; Chairman, N.A.P.A. Business Survey Committee.

"CANADIAN PRICES—THE PRESENT SITUATION," by Julian G. Davies, Purchasing Agent and Treasurer, N. Slater Co., Ltd., Hamilton, Canada.

"THE GOVERNMENT'S PRICE POLICY," by Leon Henderson, Administrator, Office of Price Administration and Civilian Supply, Washington.
(Questions and answers)

"LABOR," by Cyrus S. Ching, Director of Industrial and Public Relations, United States Rubber Co., New York.

Luncheon Meetings

Committee and Group meetings.

J. F. FRANKS
William D. Gibson Co.
Co-Chairman—
Ladies Entertainment

PAUL E. SHAW
C. F. Pease Co.
Chairman—Plant Visitation

Afternoon

Plant visits.
Committee and Group meetings.
Sight-seeing trips.

Evening

Committee and Group meetings.
Entertainment.

R. D. BARNES
Bauer & Black
Chairman—Automobiles



WEDNESDAY, MAY 28

THE VITAL CONTRIBUTION PURCHASING CAN MAKE

Morning Session

"A LONG OR A SHORT WAR?" by Major George Fielding Eliot, Military expert and commentator.

"PURCHASING—ITS PART IN PREVENTING A FUTURE SPIRAL AND SUBSEQUENT COLLAPSE," by Donald M. Nelson, Director of Purchases, Office of Production Management, Washington.
(Questions and answers)

"THE ECONOMIC OUTLOOK AND WHAT WE CAN DO ABOUT IT," by Dr. J. Anton de Haas, William Ziegler Professor of International Relationships, Harvard University Graduate School of Business Administration, Boston.

R. W. MORRILL
Bowman Dairy Co.
Chairman—Ladies Entertainment



C. L. OTREMBA
Montgomery Ward & Co.
Chairman—Service



F. W. SINSABAUGH
Bradner Smith & Co.
Co-Chairman—Ushers



FRANK WARNER
United Wall Paper Co.
Co-Chairman—Automobiles

A. W. KOSS
Purity Bakeries Service Corp.
Co-Chairman—
Ladies Entertainment

J. T. HILLENBRAND
Lyon Metal Products, Inc.
Co-Chairman—Reception





J. E. MICHAELS
Hyman-Michaels Co.
Co-Chairman—Transportation



Top Left:
Z. D. SAPPENFIELD
Allen B. Wrisley Co.
Co-Chairman—Registration



G. J. STACK
International Tag & Salesbook Co.
Co-Chairman—Service

KENNETH MOORE
Chicago Title & Trust Co.
Co-Chairman—
General Entertainment



Bottom Left:
W. A. SELLE
D. O. James Mfg. Co.
Co-Chairman—Plant Visitation

M. J. HARTIGAN
Jos. T. Ryerson & Son, Inc.
Co-Chairman—Inform-a-Show



I. A. ROSE
Edison Gen. Elec. Appliance Co.
Co-Chairman—Local Programs



J. A. BILLINGS
Payson Mfg. Co.
Co-Chairman—Hotels

Evening

ANNUAL BANQUET. Address by Dr. Allen Arthur Stockdale, head of the Speakers Bureau, National Association of Manufacturers.

Presentation of the J. Shipman Medal.
Presentation of attendance cup.

THURSDAY, MAY 29

SOUND POLICIES FOR THE FUTURE

Morning Session

"MAINTAINING AND TRAINING PURCHASING DEPARTMENT PERSONNEL," by Roy C. Haberkern, Purchasing Agent, R. J. Reynolds Tobacco Co., Winston-Salem, N. C.

"INFLATION OR DEFLATION AHEAD? — PURCHASING AND INVENTORY POLICIES FOR THE FUTURE," by A. W. Zelomek, President of the International Statistical Bureau, Inc., New York; economic consultant to the National Association of Purchasing Agents and to the Office of Production Management.

"WILL TRANSPORTATION FACILITIES BECOME A MAJOR PURCHASING PROBLEM?" by Robert S. Henry, American Railway Association, New York.

Introduction of N.A.P.A. officers for 1941-1942.

Adjournment.

CONVENTION HEADQUARTERS

■ STEVENS HOTEL CHICAGO



INFORM-A-SHOW DIRECTORY GUIDE TO THE EXHIBITS

Booth No.

- 103 ACME INDUSTRIAL CO., Chicago, Ill. Flat-lapped seals for disc type valves, shaft seals, hydraulic valves, operating cylinders, etc., to avoid leakage and variations in friction.
- 95 ACME STEEL CO., Chicago, Ill. Steel strapping for boxes, bales, skidloads, and car bracings. Acme Steelstrappers. Acme Silverstitch.
- 84 AHLBERG BEARING CO., Chicago, Ill. Complete line of CJB Master ball bearings and Bower super-finished roller bearings.
- 66 AIR REDUCTION SALES CO., New York, N. Y. Welding and flame cutting equipment for maintenance, repair and production use, with a full line of accessories.
- 132 AJAX BOX CO., Chicago, Ill. Corrugated shipping containers in attractive colors; single-faced corrugated wrapping papers; decorative display materials.
- 122 AMERICAN CHAIN & CABLE CO., Bridgeport, Conn. Preformed wire rope; chain; Reading-Pratt & Cady Lubrotite valves; Page wires, welding rods and electrodes; Campbell abrasive cutting machines; Wright hand and electrically operated hoists; Owen innerspring constructions for mattresses and upholstered furniture.
- 62 AMERICAN CRAYON CO., Sandusky, Ohio. Complete line of chalks and crayons for industrial plant use, including lumber crayons; steel and rubber marking crayons; shipping room and checking crayons; railroad crayons, carpenters' chalks; HOT-MARX crayons for marking on hot steel.
- 8 AMERICAN EMBLEM CO., Inc., Utica, N. Y. Contract manufacturers of art metal stampings, tags,

Booth No.

- nameplates, badges, identification tags, for industrial, commercial and financial organizations, educational and public institutions.
- 102 AMERICAN METAL MARKET, New York, N. Y. Daily trade journal presenting market information on iron and steel, metals, ores, and ferroalloys.
- 57 AMERICAN ROLLING MILL CO., Middletown, Ohio. Specialty steel sheets, ARMCO ingot iron, stainless steel, enameling iron, galvanized Paintgrip, Zincgrip, and electrical steel.
- 120 AUTOPOINT CO., Chicago, Ill. Autopoint and Realite mechanical pencils, with handy lead and eraser refills; desk calendars and memo cases, letter openers, pocket knives, and novelty cigarette dispensers.
- 119 BARRETT-CRAVENS CO., Chicago, Ill. Materials handling and storing equipment designed to save time, space and money in the industrial plant.
- 13 BATES MFG. CO., Orange, N. J. Numbering machines, staplers, stamp pads, automatic eyelet, list finders, and other office necessities.
- 4 BENJAMIN ELECTRIC MFG. CO., Des Plaines, Ill. Latest fluorescent lighting equipment for industrial locations, drafting rooms, laboratories, etc.; Steeltite with unbreakable glass cover; floodlighting equipment for protective and advertising use.
- 12 BERRY BEARING CO., Chicago, Ill. Extensive line of ball and roller bearings such as are used in steel mill and mining machinery, stocked for prompt delivery.
- 74 BETHLEHEM STEEL CO., Bethlehem, Penna. Structural sections, sheet piling, bolts and nuts, wire
- 75

Booth No.

and wire products, and pipe, shown against an animated background illustrating blast furnace, open hearth furnace, and rolling mill operation.

2 BINKS MFG. CO., Chicago, Ill. Demonstration of a completely automatic spindle finishing machine in operation. Spray booths, spray painting and finishing equipment and accessories.

97 BLISS & LAUGHLIN, Inc., Harvey, Ill. Fiftieth anniversary display of cold finished steel. Consultation on the selection of steels, fabricating, production, and heat treatments.

117 BRIDGEPORT BRASS CO., Bridgeport, Conn.

118 Sheet, rod, wire, seamless tubing and specialties in brass, copper, bronze, and Duronze. Decorative metal trimmings and parts.

27 BUSSMANN MFG. CO., St. Louis, Mo. Electrical protection—the BUSS Fuselron with thermal cutout; Fustat with special base to prevent bridging; Superlag renewable fuse with lag plates attached to fuse link.

34 CHASE BRASS & COPPER CO., Inc., Waterbury, Conn.

35 Brass, copper and bronze sheet, rod, wire, tube, fittings, nails, bolts, rivets, welding rods, bushing bronze, screen and wire cloth, extruded shapes, and perforated metal.

93 CHICAGO BELTING CO., Chicago, Ill. Modern production drive using pivoted-motor base and flat leather belt, a short-center drive that will maintain driven machines to maximum production capacities; leather packings.

67 CHICAGO RIVET & MACHINE CO., Chicago, Ill. New developments in multiple riveting technique and equipment, featuring a new automatic rivet setter designed for aircraft production.

59 CHICAGO STEEL SERVICE CO., Chicago, Ill. Warehouse steel service from large and diversified stocks, featuring stainless sheets.

32 CLEVELAND CONTAINER CO., Cleveland, Ohio. Tubes and shipping containers, specializing in designs for protection of fragile parts.

127 CLIPPER BELT LACER CO., Grand Rapids, Mich. Complete line of belt lacers, belt cutters, hooks; Bamboo wetproof connecting pins, and the long wearing Lubrihide pin.

104 CONCO ENGINEERING WORKS, Mendota, Ill. Comprehensive line of cranes and hoists.

54 CONTAINER CORPORATION OF AMERICA, Chicago, Ill. Corrugated shipping containers, folding cartons, solid fibreboard cases, food pails, and other specialty items.

63 CRANE CO., Chicago, Ill. Valves and fittings. The display includes a unique bird's-eye view of the entire

64 Crane manufacturing facilities, one of Chicago's largest

65 industrial plants, and vivid three-dimension color pictures of production processes.

49 DAVIDSON MFG. CORP., Chicago, Ill. The Davidson dual duplicator which reproduces both from offset plates and from type, electros and rubber plates; folding machines with exceptionally high production speed.

112 DAYTON RUBBER MFG. CO., Dayton, Ohio. Dayton V-belt and Cog-belt drives available for machines from fractional to a thousand horsepower.

107 A. B. DICK CO., Chicago, Ill. Mimeograph equipment and supplies, featuring the new Mimeograph illuminated drawing board, versatile, convenient, and with increased efficiency of operation.

98 DICTAPHONE CORP., New York, N. Y. The new Dictaphone Cameo dictating, transcribing and shaving machines; desk and cabinet models; Telecord electric conference recorder for continuous recording of speeches, lectures, conferences, telephone conversations, etc.

Booth No.

24 DITTO, Inc., Chicago, Ill. Gelatin and liquid type duplicators; high speed automatic rotary duplicator; Ditto purchase order methods, order and billing systems, and production methods.

70 JOSEPH DIXON CRUCIBLE CO., Jersey City, N. J. Dixon pencils, lubricants, paints, crucibles, and graphite products.

56 EAGLE PENCIL CO., New York, N. Y. Greater strength and uniform grading in "Chemi-Sealed" pencils now available in TURQUOISE 17-degree drawing pencils; MIKADO general writing pencils; VERITHIN and PRISMACOLOR colored pencils.

76 EBERHARD FABER PENCIL CO., Brooklyn, N. Y. MONGOL general purpose and colored pencils, with extra-strong lead; VAN DYKE typewriter erasers.

108 THOMAS A. EDISON, Inc., West Orange, N. J.

109 The new Executive model of Ediphone dictating and transcribing machines, with superior tone qualities and streamlined to modern office needs.

36 EMERSON ELECTRIC MFG. CO., St. Louis, Mo. Overlapping blade and Parker blade fans, air circulators, exhaust fans, small motors, A.C. arc welders.

11 FEDERATED METALS DIV., American Smelting & Refining Co., Chicago, Ill. Non-ferrous ingot metals of dependable quality.

53 GARLOCK PACKING CO., Palmyra, N. Y. Mechanical packings for all industrial purposes, for sealing fluids, gases and chemicals; molded rubbers and synthetics; leather products related to the packing industry.

19 GAYLORD CONTAINER CORP., St. Louis, Mo.

28 Outstanding examples of corrugated and solid fibre shipping boxes, folding and paraffined paper cartons, and merchandising display stands; kraft grocery bags and sacks, and wrapping paper.

78 WILLIAM D. GIBSON CO., Division of Associated Spring Corp., Chicago, Ill. Springs of all types. Display of a continuous bright hardened heat treat unit and photomicrographs of spring steel.

86 GLOBE STEEL TUBES CO., Milwaukee, Wis. Seamless steel tubes, plain or formed, of carbon, alloy or stainless steel, for aircraft, automotive, power plant, refinery, and general industrial use.

69 HAZEL-ATLAS GLASS CO., Wheeling, W. Va.

79 "The Glassway to Sales," dramatic presentation of glass packaging, with samples of actual merchandise.

43 HINDE & DAUCH PAPER CO., Sandusky, Ohio.

44 Corrugated shipping boxes, combination shipping-display packages, and unusual boxes designed to carry odd-shaped and heavy merchandise; in a vast array of colors, board finishes and designs.

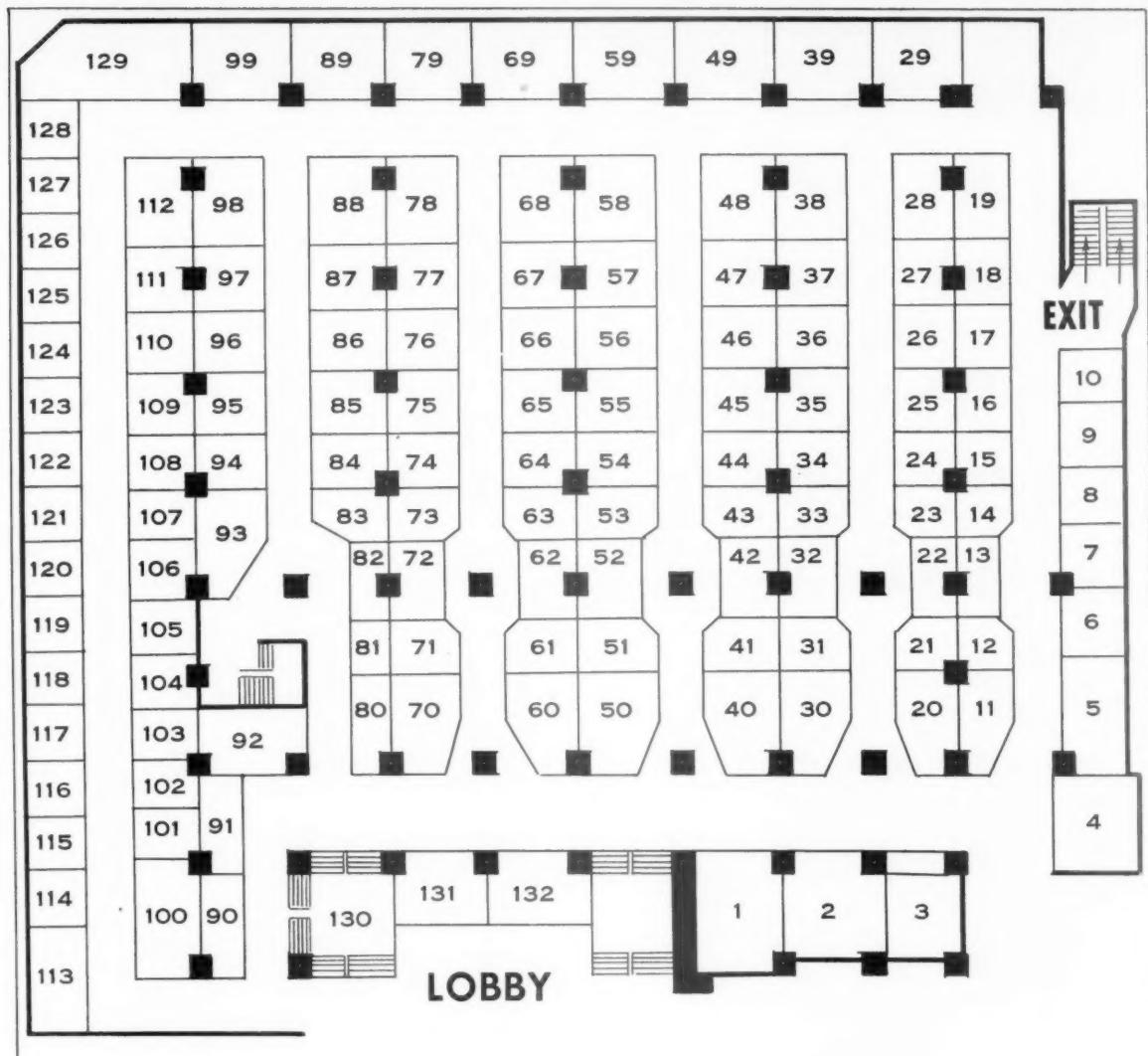
60 HYGRADE SYLVANIA CORP., Salem, Mass. Hygrade Miralumes; fluorescent lighting units, lamps, sign tubing, starter and lamp-holders; incandescent lamps.

46 ILG ELECTRIC VENTILATING CO., Chicago, Ill. Self-cooled motor propeller fans; direct connected blowers with floated drive; unit heaters.

131 INTERNATIONAL BUSINESS MACHINE CORP., New York N. Y. Punch card, tabulating, calculating and recording machines, adapted to all business records and uses.

22 INTERNATIONAL TAG & SALESBOOK CO., Chicago, Ill. All kinds of tags—shipping, merchandise, marking, factory system, manifold; baggage and parcel room checks; standard and special salesbooks; manifold books of all types; one-time carbon forms.

1 JENKINS BROS., New York, N. Y. Complete line of bronze, iron, cast carbon steel and stainless steel valves, illustrating every basic valve principle for every service requirement and piping problem.



Booth No.

- 80 JONES & LAUGHLIN STEEL CORP., Bessemer flame-controlled steel of scientifically uniform quality;
- 82 Permalined steel pipe for the transmission of highly corrosive fluids, yet capable of handling and assembling like ordinary pipe.
- 77 JUSTRITE MFG. CO., Oily waste cans, safety cans for handling and storing explosive and inflammable liquids, approved by Underwriters' laboratories.
- 14 LATEX FIBER INDUSTRIES, Inc., Beaver Falls, N. Y. Complete line of latex impregnated cellulose products.
- 125 LUDLOW-SAYLOR WIRE CO., St. Louis, Mo.
- 126 Industrial wire cloths and woven wire screens in all sizes of mesh, standard and special weaves; in Super-Loy, steel, galvanized and tinned steel, stainless steel, monel, nickel, nichrome, aluminum, etc.
- 5 LUNKENHEIMER CO., Cincinnati, Ohio. Bronze, iron and steel valves for all prevailing temperatures and pressures; boiler mountings, lubricators, oil and grease cups, cocks, and specialties.
- 15 MacRAE'S BLUE BOOK, Chicago, Ill. Directory of manufacturers and sources of supply for industrial products.
- 83 FRED MEDART MFG. CO., St. Louis, Mo. Modern steel shelving; various types of steel lockers for industrial use.
- 110 MYSTIC WASTE CO., Medford, Mass. Sanitary wiping cloths, packaged for convenience in issue and use; industrial cotton textiles.

Booth No.

- 92 NATIONAL BLANK BOOK CO., Holyoke, Mass. "Eye-Ease" records; "Metal-Holed" reinforced sheets; "Nat-Lock" post binders; new visible record equipment in three basic types of binders to meet all requirements; machine bookkeeping trays and equipment.
- 17 NATIONAL CYLINDER GAS CO., Chicago, Ill. Welding and cutting apparatus and accessories; oxygen and industrial gases.
- 121 NATIONAL METAL EDGE BOX CO., Philadelphia, Penna. Planned packaging, using the Metal Edge stayer for assembling box flats at point of use.
- 51 NATIONAL VULCANIZED FIBRE CO., Wilmington, Del. Vulcanized fibre and PHENOLITE laminated bakelite in sheets, rods, tubes and special shapes; VUL-COT waste baskets.
- 47 NUTTING TRUCK CO., Faribault, Minn. Standard and special floor trucks for handling materials in production, distribution, and warehousing.
- 87 OHIO BOXBOARD CO., Rittman, Ohio. Folding cartons, shipping containers, floor stands and other advertising pieces, fitted to the product and the market.
- 26 OXFORD FILING SUPPLY CO., Brooklyn, N. Y. Pendaflex filing and desk data outfits, speeding reference and reducing friction by hanging all folders and guides; fits any standard file cabinet.
- 105 PAASCHE AIR BRUSH CO., Chicago, Ill. Air-painting and aircoating equipment, booths and ventilators, striping tools, portable finishing units, pressure feed tank systems, and accessories.

INFORM-A-SHOW COMMITTEE

Henry C. Bauer, Revere Copper & Brass Incorporated, Chairman.
M. J. Hartigan, Jos. T. Ryerson & Son, Inc., Co-Chairman.

INFORM-A-SHOW EXHIBITORS' ADVISORY COMMITTEE

H. A. Burdorf, The Lunkenheimer Co.
Myron S. Curtis, The Youngstown Sheet & Tube Co.
A. M. Rogers, Scovill Manufacturing Co.
H. von P. Thomas, Bussman Manufacturing Co.
Henry C. Bauer, Revere Copper & Brass Incorporated

The Inform-a-Show Committee will maintain headquarters in Booth No. 130.

Booth No.

38 SKILSAW, Inc., Chicago, Ill. Portable electric tools, in more than 60 models. Cutouts and complete tools in actual operation.

68 SOCONY-VACUUM OIL CO., Inc., New York, N. Y. Motion picture, "The Inside Story" of correct lubrication, with illustrations of industrial uses of Gargoyle lubricants.

73 D. A. STUART OIL CO., Ltd., Chicago, Ill. THREAD-KUT and SUPER-KOOL metal working oils; CODOL, SOLVOL, and AL-DRAW grinding, cutting and drawing compounds; STURACO machinery oils and greases.

91 THOMAS PUBLISHING CO., New York, N. Y. *Thomas Register of American Manufacturers*, reference medium for Purchasing Agents; *Industrial Equipment News*, monthly publication devoted to new products in industry.

106 TRINER SCALE & MFG. CO., Chicago, Ill. Complete line of scales, featuring a new heavy duty shipping room scale, and improved counting scale for inventory and stock room use.

10 TURCO PRODUCTS, Inc., Chicago, Ill. Maintenance materials and industrial cleaning compounds.

115 UNDERWOOD ELLIOTT FISHER CO., New York, N. Y. Underwood typewriters; Underwood Sundstrand quiet model adding-figuring machine; Electric Keyboard Elliott Fisher accounting machine; Underwood Standard and Sundstrand 10-Key accounting machines, built for speed and accuracy.

90 UNION BAG & PAPER CORP., New York, N. Y. Current trends in packaging design, illustrated by a range of bags from small cellophane bags to large, rugged multi-wall sacks.

33 UNITED AUTOGRAPHIC REGISTER CO., Chicago, Ill. UARCO business systems written with continuous forms. A dozen outstanding installations will be shown, with indicated savings of from 17% to 84%.

18 U. S. GUTTA PERCHA PAINT CO., Providence, R. I. "Barreled Sunlight" paint and enamel products for industrial plants.

37 U. S. SANITARY SPECIALTIES CORP., Chicago, Ill. The Soaperior gravity tank liquid soap dispensing system; Grimeter liquid mechanics' hand soap; disinfectants, deodorants, and other sanitation maintenance products.

30 UNITED STATES STEEL CORP., Pittsburgh, Penna. Cooperative display showing products of American Bridge Co., American Steel & Wire Co., Carnegie-Illinois Steel Corp., Columbia Steel Co., National Tube Co., Scully Steel Products Co., and Tennessee Coal, Iron & Railroad Co., all U. S. Steel subsidiaries.

31 40 41 VAN CLEEF BROS., Chicago, Ill. Mechanical rubber goods; self-adhesive tapes for masking, sealing, identification, and decorative use; sponge rubber in sheet and molded form; rubberized fabrics and cements.

50 WALWORTH CO., New York, N. Y. Valves, fittings, pipe, and pipe wrenches. Silbraz joints, made up with Walseal valves and fittings and bronze or copper pipe, resulting in a "one-piece line" that is leak-proof, vibration-proof, and corrosion resistant.

52 WHITING CORP., Harvey, Ill. Diorama featuring three different types of foundry equipment for the manufacture of gray iron, malleable iron, and converter steel castings.

113 114 YOUNGSTOWN SHEET & TUBE CO., Youngstown, Ohio. Carbon and alloy steels, sheets, plates, pipe and tubular products, conduit, tin plate, bars, rods, wire, nails, tie plates and spikes.

IT TAKES ALL THIS TO MAKE STEEL

The large producing industries have proportionately large buying problems

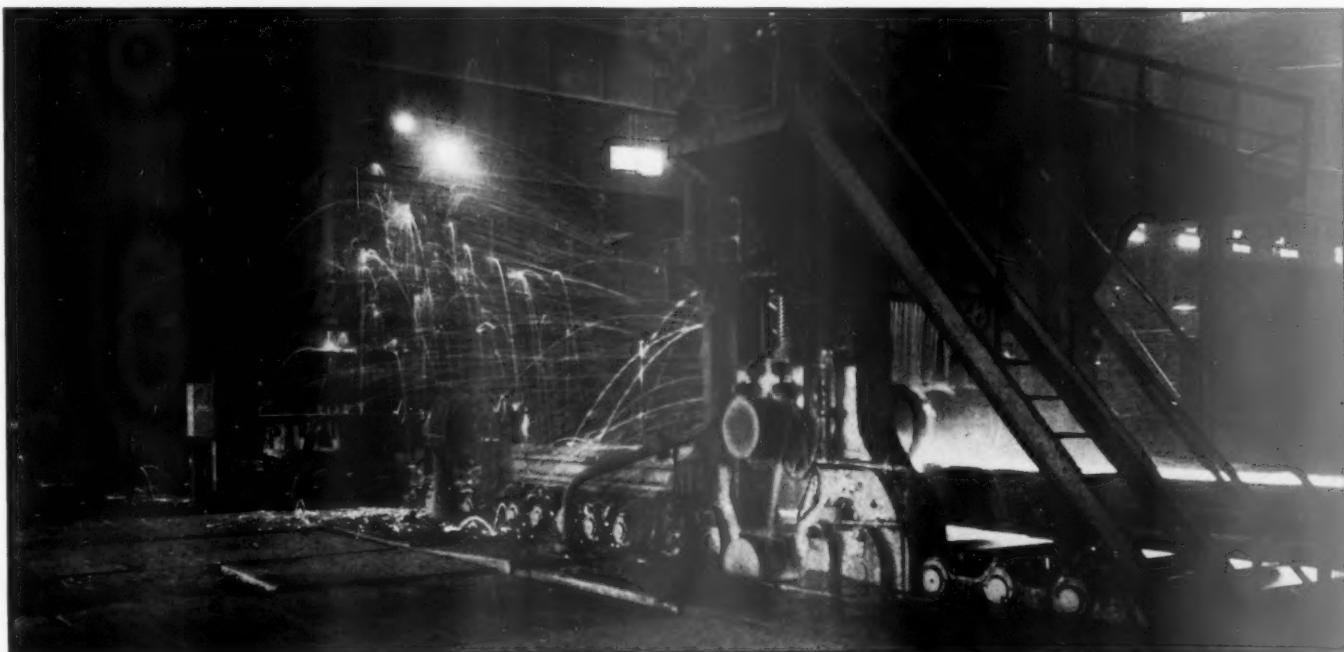
By F. S. CLARK

Bethlehem Steel Company



STEEL, America's number one industry in the value of its products, is also the country's greatest consuming industry. Since last August, the steel industry has operated at the largest production rate in its history. Its consumption of raw and finished materials has been in proportion. Peak performance in steel production is making far reaching demands on other industries and is drawing heavily on a long list of natural resources. When the steel industry is on an all-out production basis, it also calls for the

Safety glass shields the operators of this blooming mill as sparks from a large ingot bombard the control pulpit.



best productive effort that the country as a whole can make.

Lanolin, extracted from sheep's wool, and best known as a remedy for dishwater hands, is one material that the industry is now consuming as never before; tissue paper is another. Its Purchasing Agents are buying Millville gravel, for use in making ingot molds, by thousands of tons; and silver pencils for marking on blue prints.

To cite an example of the tremendous amounts of raw materials required by the steel industry, the fuel consumption at Bethlehem Steel Company's Maryland Plant at Sparrows Point, near Baltimore, last month—including fuel oil, gas, wood and coal—was the equivalent of 280,000 tons of coal. This would be enough fuel to heat the homes of all Baltimore for half the winter. In 1937 this country produced 50,000,000 tons of steel. Primary steel making materials consumed included 25,000,000 tons of coal, 50,000,000 tons of ore,

to the air. The film of palm oil thus deposited on the metal, having served its purpose, is then removed by passing it through cloth-surfaced rolls that revolve in a mixture of rye and wheat middlings. Equal parts of each of these two kinds of middlings are used. The rye, being harder than the wheat, provides a gently scouring action, and both are absorbent. The discarded oil-soaked middlings are used for stock feed. Bethlehem's tin plate division employs 6,000,000 pounds of wheat and rye middlings annually for cleaning tin plate.

It is said that about two quarts of grease and oil of some type are used in making a ton of steel. Soap is the principal lubricant used in wire drawing and has been for 200 years.

Wood Into Steel

Sawdust is one of the important materials used in finishing certain steel products, notably in the manufacture of bolts and nuts and nails, which are among



A 170,000-ton pile of Millville gravel, used for making ingot molds.

12,500,000 tons of limestone, 25,000,000 tons of scrap, 12,000,000 tons of fuel oil, and about 500,000 tons of miscellaneous materials including fluorspar, ferromanganese, lime and alloying elements. In that year the country's production of steel and the materials required for making it amounted to more than one-tenth of all the freight carried on the railroads.

Lanolin is one of the countless incidental materials that are used in making steel and getting it to market. The steel industry is one of the leading consumers of this material. Compounds containing lanolin are extensively used as a protective coating on steel sheets to prevent them from rusting while in storage or transit.

Streamlining an Ancient Craft

Steel making, while a youthful industry in many of its refinements, is also a very old industry. Some of its practices and some of the materials that it uses date back to antiquity. Many materials now employed have been in use a hundred years or more. Palm oil, for instance, was used in England in making tin plate (thin sheet steel coated with tin) as long ago as the days of guild craftsmanship.

A bath of palm oil floating on top of the molten tin through which the steel is passed in applying the tin on tin plate prevents surface oxidation that otherwise might occur were the hot metal immediately exposed

A paint stick is employed to mark this roll of sheet steel, which is still hot.



the steel industry's important finished products. Before they are packaged for shipment, bolts, nails and other similar wire products are rotated in huge tumbling barrels containing sawdust. This tumbling operation takes off sharp edges that otherwise might occasionally cut fingers, and the sawdust acts as a polisher.

Sawdust also plays a vital role in the galvanizing of sheets. Here it is used, a mere handful or so at a time, as one of the ingredients in the flux that floats on top of the molten zinc in the galvanizing pot. Addition of a handful of sawdust now and then gives the flux just the right creamy consistency that promotes a tight wedding of the zinc coating to the steel. Tallow is also used in the flux.

Even wood shavings play a role in steel making. Lumber of every description is used by thousands of feet; also cord-wood and kindling. Wood shavings are employed in sintering ore, a kind of roasting process which promotes more efficient blast furnace operation. When ore is of granular or powdery consistency it is

mixed up with coal dust, oil, and other materials, including shavings, and roasted or sintered. The shavings burn out, leaving little holes that provide desirable porosity. Peanut shells are also sometimes used for this purpose.

Bottoms of blast furnaces are blown in with wood fires. In fact, wood fires are employed for conditioning or warming up furnaces of many types around a modern steel plant, and always have been. Before steel is tapped from an open hearth furnace, a roaring fire of wood may be built in the runner, or trough that guides the hot metal into the ladle, in order to thoroughly dry it out and prevent the hot metal from splashing. It is a small steel plant that doesn't use several hundred cords of firewood and kindling during a year's time. Green saplings are often used in working up heats of steel produced by the acid open hearth method. The steel industry uses finished and rough lumber by the carload, for patterns in molding, and for bracing and packing shipments of steel.

Mineral Products

Sand, clay and gravel are employed by thousands of tons for molding, and also in the lining and construction and maintenance of furnaces of various types. Molding sands usually contain a percentage of clay. Millville gravel comes from the region of Millville,



Mica schist, invaluable for lining the throats of Bessemer converters.

Shavings are used by the carload in preparing fine ores for the blast furnace.

N. J. Because of its coarseness and because it contains just the right amount of clay, it is in demand as far west as Ohio for use in molding iron for ingot molds and other purposes. Silica sand (which is finer grained, and for which New Jersey is also famed) is a preferred type for molding steel.

The construction of the molds in a steel or iron foundry is a highly skilled trade. Sand and clay, either naturally blended or mixed according to a determined formula, are the principal materials employed. A clay

famed for its effectiveness as a bonding agent, known as Bentonite, comes from Kansas and Colorado and is used by the steel industry throughout the country. All sorts of sticky materials are used for binders. Molasses is one of them. Patented binders in which tannic acid, more commonly associated with the leather industry, is a basic ingredient, are extensively employed. Other materials often used are corn starch, corn syrup, and powdered pitch.

The ceramics of the steel industry is a subject in itself. Bricks made of fire clay and also of silica rock are the most widely used materials in lining the many different types of furnaces. Three main types of clay are employed: namely, flint, semi-flint, and plastic. Next in importance to fire clay bricks are silica brick; and then follow many incidental materials, including dolomite, Cuban chromite, magnesite from Austria and the State of Washington; also diatomaceous earth, made up of tiny sea shells and extensively produced in California.

Nature also provides rocks and stones that, without processing and in the forms in which they are quarried, resist the high heats of steel making. Sandstone of kinds that are also highly prized for building stone, is a widely used material for lining the soaking pits in which steel ingots are heated to rolling temperature. Mica shist—practically all of it used in this country produced in a quarry near Philadelphia—is a preferred material for lining the throats of Bessemer converters.

Handle with Care

Steel doesn't seem like a material that would have to be handled with care in transit. Nevertheless it is; mainly because it is so heavy. When a car loaded with steel bars jolts to a sudden stop, the car itself may be damaged even if the bars are not. That is



why it takes so much lumber to properly brace shipments of steel. As with other articles of commerce, also, it is important to the reputation of producers of steel that their products reach their destination in good condition. Hence, great care is lavished in protecting steel from corrosion or other damage during shipment.

The first-line protection is likely to be a film of oil, lacquer, paint, or perhaps (as has been indicated) a compound containing lanolin, applied to the surface of the steel itself. Hundreds of different types of protec-

tive finishes of this type are employed. Likewise vast quantities of paper are used. Oftentimes a parcel or shipment of steel will have both an outer wrapping and an inner wrapping.

Outer wrappings are very likely to be of a very strong type of waterproofed paper of two thicknesses, with a layer of asphalt between them, and reinforced with jute or sisal fibres. The inner wrapping may be an absorbent paper, or it may be a waxed or oiled paper. A drab fibre paper commonly called butcher paper is a widely used absorbent type of paper. Glazed



Heat pills made of salt and dextrose sugar help steel workers to withstand heat.

Mixing rye and wheat middlings for cleaning tin plate at Bethlehem Steel Company's Maryland Plant, Sparrows Point, Md.

pitch-covered paper is one of the waterproof types. Boiled tympan paper is used for packing wax molds that are in turn used in a highly specialized process known as thermit welding, frequently employed in the construction of steel making machinery. Fourdrinier

tissue paper is used for packing polished stainless steel machine parts.

Miscellaneous Supplies

In order to keep track of the many kinds of steel while it is being routed through manufacturing operations, some kind of identification marks are necessary. A special kind of pencil, known as a paint stick, has been designed for marking on steel. Paint sticks can be used to make identifying marks on steel that won't rub off, even when it rains. Two types are employed, one for marking on hot steel and one for marking on cold steel.

Other random items that are perhaps worthy of mention are "heat pills" made of seven grains of salt and three grains of dextrose sugar, the kind gum drops are made of. Heat pills, kept on hand at convenient locations, help steel workers to withstand the heat during the summer months. Salt is also used to clean steel and in tempering it.

Goggles with safety-glass lenses protect steel workers' eyes. Literally hundreds of thousands of safety glasses are in service in the steel industry at any given time. A standard preparation used by steel workers to prevent their goggles from fogging where moisture is present, comes in a small pencil like lipstick and fits into a neat aluminum case. It is rubbed on the lenses with a piece of cloth.

Some safety glasses are made partly of felt to protect eyes where fine abrasives are being used. Some are made partly of rubber to protect eyes from splashing acids or acid fumes. Safety glass is also extensively used for the windows of control pulpits of scale breakers in rolling mills and the charging machines that are employed to feed scrap and ferromanganese into open hearth furnaces.

Sulphuric and muriatic acids are used for cleaning steel. Phosphoric acid is used to protect steel from rusting. Last year the industry consumed 980,000 tons, or 245,000,000 gallons of all kinds of acids.

These are representative of incidental items used in making steel. The list could be expanded indefinitely. Just as steel is omnipresent in so many articles in



common consumption, so also, there are few materials commonly used that do not in some way contribute quite directly to making or marketing it. There's hardly a producing area in the world that doesn't contribute some vital material or materials to the making of steel.

DETERMINATION OF PURCHASE QUANTITIES

By JOHN G. McLEAN

PART III

This is the concluding section of the paper which won First Prize in the 1940 Students' Educational Contest for the Boffey Memorial Awards, sponsored by the National Association of Purchasing Agents.

The two previous installments developed mathematical procedures for evaluating costs as affected by carrying charges, discounts, and price trends. The present installment deals with economical manufacturing quantities and intangible factors, and summarizes the application of such quantitative methods in a purchasing program.

Q UITE often in the problem of quantity determination, the Purchasing Agent is concerned not with the economical quantity to purchase, but with the economical quantity to manufacture. Problems of this type arise when the Purchasing Agent has the responsibility of putting through manufacturing orders at regular intervals for the replenishment of stocks. In other instances, he may have a part in the determination of manufacturing quantities because of his responsibility for the procurement of raw materials in economical quantities. In any case, the quantitative methods for the determination of manufacturing lot sizes are so similar to those used in the determination of purchase quantities that they warrant consideration at this point.

The problem of manufacturing quantities is primarily one of balancing reductions in the unit costs for set-up time, planning, etc., that can be gained by manufacturing in large quantities, against the additional carrying charges and storage expenses that will be incurred by keeping the large quantities in stock before they are consumed.

In the past, quantitative procedures for the determination of manufacturing quantities have been needlessly complicated by the development of a separate treatment for each of two cases: The case in which the entire manufacturing lot becomes available in the storeroom at the same moment, and the case in which the units move into the storeroom at regular intervals during the manufacturing period as they are completed. Consideration of the nature of the problem, however, indicates that for the purpose of determining the economical lot to manufacture, these two cases may be regarded as identical. It is true that in the latter case

the carrying and storage charges appear to be somewhat smaller because the maximum quantity ever in stock in the second case is less than in the first case, by virtue of the units which are consumed during the manufacturing period. This saving, however, is exactly offset by the additional carrying and storage charges which are incurred on the units which are placed in stock during the manufacturing period. The similarity of these two cases is demonstrated in the following quantitative treatment.

Handling the Lot as a Unit

The case in which the entire lot becomes available in stock at one time is closely analogous to the problem of purchase quantities, and a graphic sketch of the depletion and replenishment of stocks will be similar to that shown in Figure 1, which is repeated from the earlier discussion. In this case, the symbols will have the following significance:

- Q—The quantity manufactured.
- F—The cost of setup time, planning, routing, ordering, etc.
- P—The unit cost of manufacturing, including materials, labor and overhead, but none of the elements in F.

As was demonstrated before, the storage costs for carrying a unit of the quantity Q in stock until it is consumed will be equal to BEQ/S , and the carrying charges (interest, insurance, deterioration and obsolescence) on a unit of the quantity Q will be equal to the purchase price times $IQ/2S$.

In this case, considering a manufacturing operation instead of a purchase, the purchase price or unit cost will correspond to the unit manufacturing cost plus a unit charge for setup time, planning, etc., which may be expressed as P plus F/Q . The carrying charge per unit, then, will be equal to this expression times $IQ/2S$. The expressions for storage charges, carrying charges, the unit manufacturing cost, and the unit cost for setup time, planning, etc., may now be added together to secure an expression for the total cost of a unit in the quantity Q which will be consumed at the rate of S units per year. This appears as Equation 5. This expression may then be differentiated and set equal to zero to obtain that one quantity which will give the lowest total unit cost, as in Equation 6.

As might be expected, this Equation 6 differs from Equation 2 (for the most economical lot to purchase) only to the extent that F (the cost for setup time, planning, routing, etc.) replaces G (the cost of procurement).

The case in which the units in the manufacturing quantity move uniformly into stock during the manufacturing period as they are completed requires a slightly different analysis, but the final result is identical to that obtained above. A diagrammatic sketch of the depletion and replenishment of stock for this situation would appear somewhat as shown in Figure 2. In this case:

M is the rate of manufacture after production is started.

T_2 is the time after the order is placed before production is started.

T_1 is the time necessary to complete the entire quantity Q after production is started, and is equal to Q/M .

Q_1 is the maximum quantity ever in stock (the quantity manufactured less the amount consumed during the manufacturing period) or Q minus T_1S . By substituting Q/M for T_1 , this is shown to be equal to $Q(1-S/M)$.

T is the time necessary to consume Q_1 , or $Q(1-S/M)/S$.

Now we can secure an expression for the total unit costs obtained by manufacturing a lot Q . This will consist of adding together the unit storage charges during the time Q_1 is being consumed and during the time Q_1 is being manufactured, and the unit carrying charges for the same periods. The result is identical with Equation 5, obtained for the treatment of the case in which the entire lot becomes available in stock at the same time.

This mathematical analysis, therefore, demonstrates the original assertion that in the determination of economical manufacturing quantities it makes no difference whether the entire lot becomes available at the same time or at intervals during the manufacturing period. It follows that Equations 5 and 6 may be applied with equal validity in both cases.

These quantitative procedures for the treatment of manufacturing quantities may be applied in the same manner as that suggested for the analysis of purchase quantity problems. As in the case of purchase quantities, these expressions have been considerably simplified by the omission of any factor for the carrying and storage charges on the stocks which are maintained at all times as a reserve against contingencies, because such a factor would not influence the economical manufacturing quantity in any way, and because it appears that such expenses may be more properly regarded as a cost of doing business than as expenses to be charged against each manufacturing lot.

Finally, as was noted in the case of purchase quantities, these quantitative methods in no way preclude

the use of judgment on the part of the Purchasing Agent, but merely provide a method for balancing and analyzing the cost factors in the situation after the Purchasing Agent has exercised his best judgment with respect to each one of them.

Intangible Factors

The discussion of quantitative procedures up to this point has indicated simple mathematical relationships that the Purchasing Agent may use to appraise the factors which influence economical purchase quantity, correlating his judgments regarding quantity discounts, procurement expense, interest expense, deterioration, obsolescence, insurance, storage costs, price trends, the rate of consumption, and the purchase price (including inward freight).

The quantitative treatment of these factors does not necessarily, however, give the final answer to the problem. Miscellaneous and intangible elements remain to be taken into account. Such treatment, nevertheless, greatly simplifies the problem of evaluating these intangible elements because it puts clearly before the Purchasing Agent the most economical quantity to purchase in view of the cost factors in the situation, and enables him to determine just what it will cost to take into account any other factor that he may feel to be present.

It may be said, therefore, that while not giving the final answer to the problem, the foregoing methods resolve the great majority of the factors in the situation and make it relatively easy for the Purchasing Agent to make minor adjustments and modifications for any miscellaneous elements that may be present.

For example, one of the cases cited earlier in this discussion presented a situation where, by the use of Equation 2, the Purchasing Agent determined that 224 units will be the most economical quantity to buy in view of his judgment with respect to the cost factors in the problem. In addition, by using Equation 1, he determined that he will obtain a unit cost of \$1.02 by purchasing in lots of 224 units.

At this point the Purchasing Agent may decide that it is possible to get more uniform quality by buying the year's supply of 2,000 units all at once. The unit cost on the purchase of 2,000 units is determined by Equation 1, and is equal to \$1.08. The entire situation is now clearly before the Purchasing Agent on the simplest possible basis, and he has merely to decide whether or not the possibility of securing uniform quality by purchasing the year's supply at one time warrants an

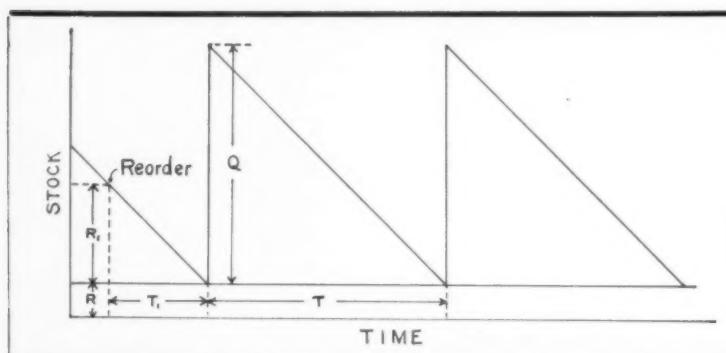


Figure 1—Depletion and Replacement of Stocks when the entire lot becomes available at one time.

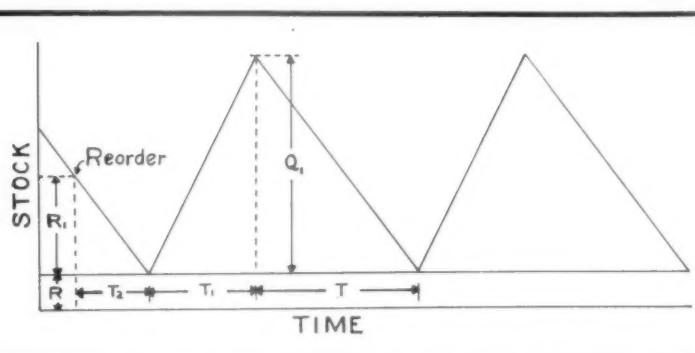


Figure 2—Depletion and Replacement of Stocks under a continuing production system.

additional expenditure of \$.06 per unit, or a total of \$120.

With respect to the miscellaneous and intangible factors which influence the purchase quantity, then, it may be said that quantitative methods simplify the problem by indicating the most economical quantity to buy in view of all the cost factors in the situation and by enabling the Purchasing Agent to determine the costs that will be incurred by taking any additional factors into consideration. It is also noted from previous calculations, that in the absence of price changes, the Purchasing Agent will generally increase his costs less by buying more than the economical purchase quantity than by buying in lots less than the economical purchase quantity.

Limitations of Quantitative Methods

Having discussed the effectiveness of quantitative methods in several areas, it is desirable to consider some very definite limitations that are inherent in their use.

a. It is clear that the conclusions obtained by quantitative methods are no more accurate than the Purchasing Agent's judgment with respect to the factors which they consider. If the Purchasing Agent's judgment regarding the rate of consumption, obsolescence, storage costs, price trends, or any of the other cost factors in the situation is inaccurate, the conclusion reached by quantitative methods will be equally unsound and will represent the cumulative effect of his errors in the appraisal of the individual elements. This limitation emphasizes the point that quantitative methods have a part in the determination of purchase quantities only after the Purchasing Agent has exercised his judgment with respect to all of the factors in the situation.

b. The conclusions established by quantitative methods are valid only as long as the underlying conditions which influenced the Purchasing Agent's judgment regarding the cost factors in the problem remain unchanged. It is, of course, true that for any given product, factors such as procurement expense, carrying charges and storage costs are likely to remain fairly constant over a period of time. There is a real danger, however, that the Purchasing Agent will continue to use the results established by a quantitative treatment after changes in basic conditions have destroyed their validity and have created a new situation which requires a reappraisal of the entire problem.

c. Quantitative methods are concerned primarily with the analysis and interpretation of the cost factors in purchase quantity problems. In special cases where quality or some other element is the dominant consideration, the value of quantitative procedures will be correspondingly decreased.

d. Quantitative methods are adapted to the treatment of specific problems which involve consideration of particular products and the particular set of circumstances in which they are being purchased. In no case can quantitative methods be applied effectively to the treatment of purchase quantity problems which are of a generic nature or which are stated in terms of generalities.

Value of Quantitative Methods

By way of summary, the advantages of a quantitative approach to the problem of purchase quantity determination may be outlined as follows:

a. The use of quantitative methods forces the Purchasing Agent to consider all of the factors in a particular situation and encourages him to appraise each

Equation 1

$$C = P + \frac{G}{Q} + \left(\frac{P_1}{2S} + \frac{BE}{S} \right) Q$$

Equation 2

$$Q = \sqrt{\frac{G}{\frac{P_1}{2S} + \frac{BE}{S}}}$$

Equation 3

$$C = P_1 + \frac{A+G}{Q} + \left[\frac{\left(\frac{A}{Q} + P_1 \right) I}{2S} + \frac{BE}{S} \right] Q$$

Equation 4

$$Q = \sqrt{\frac{A+G}{\frac{P_1 I}{2S} + \frac{BE}{S}}}$$

Equation 5

$$C = P + \frac{F}{Q} + \left[\frac{\left(\frac{F}{Q} + P \right) I}{2S} + \frac{BE}{S} \right] Q$$

Equation 6

$$Q = \sqrt{\frac{F}{\frac{P_1 I}{2S} + \frac{BE}{S}}}$$

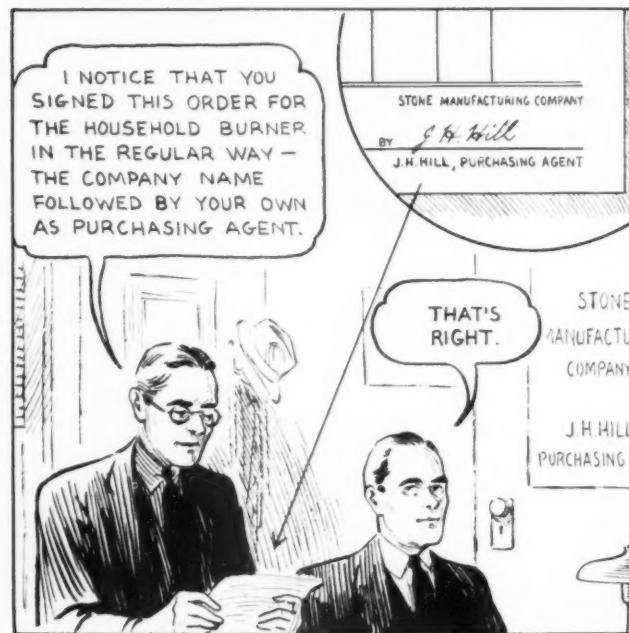
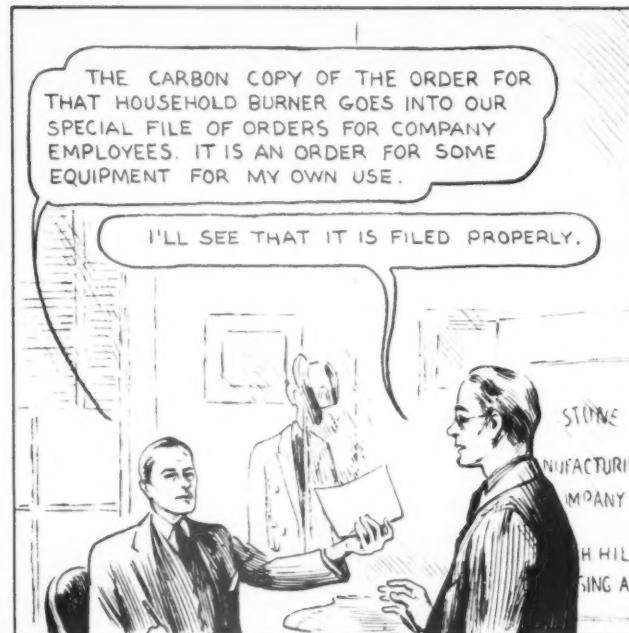
of them in concrete and definite terms. The problem of purchase quantities is one of balancing two opposing sets of cost factors one against the other, to reach a quantitative conclusion regarding the amount to purchase. Quite clearly the balancing and appraising of cost factors may be carried out far more effectively if the Purchasing Agent forms a definite quantitative opinion with respect to each of them instead of merely considering them in vague and intangible terms.

b. After the Purchasing Agent has formed a definite opinion with regard to each of the cost factors in the situation, he still has the task of balancing the elements which favor large quantities against those which favor small quantities. The complexity of the problem indicates clearly that the Purchasing Agent cannot possibly determine accurately that one quantity which will give the lowest unit cost without using a mathematical analysis. In this connection, the quantitative methods

Continued on page 113

PEN-POINTS ON PURCHASE LAW

BY H. H. SHIVELY, BABSON INSTITUTE



RESPONSIBILITY ON PURCHASE CONTRACTS

In the situation shown above, the Purchasing Agent has not departed from his usual business role as purchasing agent for his company. It is in this capacity that he buys the oil burner for household use. The seller may not know, and the Purchasing Agent may not tell him specifically, that the burner is for personal rather than for company use. It would make little difference whether he did or not if the intention of the seller were to sell the burner to the company and on the strength of company credit. In the past the seller has been dealing with the company in this way. He does so this time. The purchase order is executed in the same manner as for previous company purchases. It is this array of circumstances which prompts the agent to say that should he not pay for the oil burner, the company would be responsible.

In certain circumstances, however, the seller might desire to contract with the agent alone and to rely only on his credit. If so, the agent could be held. In the case of ordinary simple contracts, most states permit the introduction of oral, or parol, evidence to show the intentions of the parties in making the agreement.

If the company is held liable on a contract made primarily for the benefit of the agent, or other employee, such person would, of course, be legally obligated to reimburse the company.

The signature on the purchase order may be that of the company followed by "by" or "per" and the agent's name and title; the signature may be simply the name of the Purchasing Agent, plus his title. The former is preferable in that it clearly designates the company as principal.

THE MARKET PLACE



First - of - the - month quotations
for carloads or mill shipments,
with comparative prices quoted
one month ago and one year ago

ACIDS

	May 1 1940	Apl. 1 1941	May 1 1941
Acetic, 28%, cwt.....	2.23	2.23	2.23
Muriatic, 18 deg., cwt.....	1.50	1.50	1.50
Nitric, 36 deg., cwt.....	5.00	5.00	5.00
Oxalic, Works, cwt.....	10.75	10.75	10.75
Phenol, Works, cwt.....	14.25	14.25	14.25
Sulphuric, 66 deg., ton.....	16.50	16.50	16.50



BUILDING MATERIALS

Brick, N. Y. dock, per M.....	12.00	12.00	12.00
Cement, f.o.b. plant, bbl.....	2.15	2.15	2.15
Glass, single B, per box.....	2.70	2.70	2.80 ↑
Lime, per bbl.....	2.85	2.85	2.85
Nails, wire, per keg.....	2.55	2.55	2.55
Oak flooring, per M. ft.....	72.00	79.00	80.00 ↑
Southern pine, K.C., per M. ft.	23.95	30.75	31.47 ↑

CHEMICALS

Alcohol, denatured, gal.....	.31½	.32½	.38 ↑
Alum, potash, cwt.....	3.75	3.75	3.75
Alumina Sulf., Comm., Works, cwt.....	1.15	1.15	1.15
Ammonia, aqua, 26 deg., drums.....	.02½	.02½	.02½
Arsenic White, cwt.....	3.00	3.50	3.50
Red, cwt.....	18.00	nom.	nom.
Barium Chloride, ton.....	77.00	77.00	77.00
Carbonate, ton.....	56.50	56.50	56.50
Benzol, pure, gal.....	.16	.14	.14
Borax, powd., ton.....	48.00	48.00	48.00
Chlorine, cwt.....	1.75	1.75	1.75
Formaldehyde, lb.....	.05½	.05½	.05½
Glycerine, drums, lb.....	.12½	.12½	.12½
Lead acetate, white, broken, cwt.....	11.00	11.00	11.00
Nickel sulphate Double.....	.13	.13	.13
Single.....	.13	.13	.13
Potash Caustic, solid.....	.06½	.06½	.06½
Permanganate.....	.18½	.20	.20
Sal Ammoniac Gran. white, cwt.....	4.50	4.50	4.50
Gran. gray, cwt.....	5.75	5.75	5.75



COAL & COKE

Anthracite, stove, mines.....	5.75	6.25	6.25
Bituminous, Cleaf, mine run.....	2.50	2.70	2.70
Beehive Coke, Connellsville.....	4.35	5.25	5.25
By-product Coke, Newark.....	11.38	11.85	11.85

FERTILIZERS

Muriate potash, 80-85%, per unit K20.....	.53½	.53½	.53½
Sulphate potash, 90-95%, bags.....	36.25	36.25	36.25
Nitrate soda, bulk.....	27.00	27.00	27.00
Sulphate ammonia, dom, bulk..	28.00	29.00	29.00
Steamed bonemeal, 3 and 50, per ton.....	32.50	35.00	35.00

GRAINS

Barley, malting, bus.....	.68½	.75	.76½ ↑
Corn, No. 3, yellow, bu.....	.67½	.67½	.68 ↑
Oats, No. 2, white, bu.....	.45	.39½	.39½ ↓
Rye, No. 2, Western, bu.....	.90	.64½	.63½ ↓
Wheat, No. 2, hard winter, bu.	1.08	.87	.85½ ↓
Flour, spring patents, 196 lbs..	6.05	5.55	5.15 ↓

HIDES

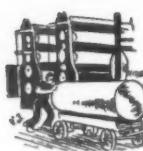
Light native cows, lb.....	.13½	.13½	.14½ ↑
Heavy native steers, lb.....	.13	.13	.13½ ↑
Calfskins, 5-7 lbs, per skin.....	1.55	1.80	1.80

	May 1 1940	Apl. 1 1941	May 1 1941
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	May 1 1940	Apl. 1 1941	May 1 1941
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IRON & STEEL

Pig iron, foundry No. 2.....	23.00	24.00	24.00
Pig iron, basic, valley.....	22.50	23.50	23.50
Cast iron pipe, New York.....	52.20	52.20	52.20
Forging billets, Pittsburgh base	40.00	40.00	40.00
Sheet bars, Pittsburgh base....	34.00	34.00	34.00
Wire rods, Pittsburgh base....	40.00	40.00	40.00
Cold rolled sheets, cwt., Pittsburgh base.....	3.20	3.05	3.05
Hot rolled annealed sheets, cwt., Pittsburgh base.....	2.10	2.10	2.10
Cold rolled strips, cwt., Pittsburgh base.....	2.95	2.80	2.80
Hot rolled strips, cwt., Pittsburgh base.....	2.10	2.10	2.10
Tin plate, cwt., Pittsburgh base	5.00	5.00	5.00
Bars, cwt., Pittsburgh base....	2.15	2.15	2.15
Shapes, cwt., Pittsburgh base....	2.10	2.10	2.10
Bright wire, cwt., Pittsburgh base	2.60	2.60	2.60
Ground shafting, cwt., Pittsburgh base.....	2.65	2.65	2.65
Rails, ton, Pittsburgh base.....	40.00	40.00	40.00



PAPER

News, roll, ton	50.00	50.00	50.00
Book, M. F., cwt.....	6.25	6.40	6.40
Wrapping, northern, cwt.....	5.00	5.25	5.25
Wrapping, southern, cwt.....	4.25	4.25	4.50 ↑
Wrapping, manila jute, cwt....	8.25	8.25	8.75 ↑
Chip board, No. 1, ton.....	37.50	40.00	45.00 ↑
Wood pulp, mech., ton.....	32.00	34.00	34.00
Wood pulp, sulph., No. 1, cwt.	2.62½	3.17½	3.17½



METALS, NON-FERROUS

Aluminum, virgin ingots.....	.19	.17	.17
Antimony, American, spot.....	.14	.14	.14
Copper			
Electrolytic .....	.11½	.12	.12
Casting .....	.11	.12½	.12½
Lake .....	.11½	.12	.12
Chromium, 97%, spot.....	.84	.84	.84
Lead, E. St. Louis.....	.0495	.057	.057
Nickel, ingot .....	.35	.35	.35
Quicksilver, flask	171.00	178.00	182.00 ↑
Silver, bars, N. Y., per oz.....	.34¾	.34¾	.34¾
Tin, Straits, spot.....	.475	.5275	.5225 ↓
Zinc, E. St. Louis.....	.0575	.0725	.0725

METAL PRODUCTS

Copper, wire, bare, cwt.....	14.25	15.375	15.375
Yellow brass sheets, high.....	18.31	19.48	19.48



NAVAL STORES

Turpentine, gal.....	.35	.45	.48½ ↑
Rosin, Grade B, cwt.....	5.40	2.23	2.17 ↓

PAINT MATERIALS

White lead, dry, basic, carbonate .....	.07	.07½	.07½
Carbon black .....	.028	.03075	.03325 ↑
Shellac, orange .....	.14½	.24	.24
Linseed oil .....	.108	.103	.107 ↑

PAPER



PETROLEUM

Crude, Mid-Continent	1.02	1.02	1.07 ↑
Crude, Penna.	2.30	1.89	1.99 ↑
Gasoline, 65 oct.....	.06	.06	.07 ↑
Bunker Oil C.....	1.50	1.25	1.35 ↑
Kerosene, 41-43 grav.....	.06	.048	.052 ↑
Penn, bright stock, light, 25 P.T.29	.22½	.23 ↑
Penn, cylinder oil, 600 flash....	.21	.18½	.18½



RUBBER

Smoked sheets20	.23½	.23½ ↑
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TEXTILES

Cotton middlings, Galveston...	.1042	.1101	.1083 ↓
Cotton yarns, 22s24½	.29½	.33½ ↑
Print cloths, 38½", 64 x 60....	.05	.07½	.07½
Sheetings, 37", 48x48 .....	.05½	.08½	.08½
Wool, fine combing, ½-blood..	.83	1.03	1.02 ↓
Worsted yarns, French 2-40s..	1.80	1.85	1.85
Worsted yarns, English 2-40s..	1.60	1.85	1.82½ ↓
Silk, Japan, double extra cracks	2.55	2.88	2.79 ↓
Rayon, viscose, 150, 40s .....	.53	.53	.53
Burlap, 10½-oz., 40" .....	.076	.111	.122 ↑
Hemp, Manila .....	.065	.07	.08 ↑

Revere Copper and Brass Incorporated

Executive Offices

230 Park Avenue

New York

C. Donald Dallas
President

To American Industry:

Virtually the whole production of Revere Copper and Brass today is directed toward arming the nation and the allies of democracy beyond its borders.

We do not make tanks or ships, fighting planes or machine guns. But without the products we do make, these would be useless. Every bullet, every shell and every cartridge needs copper or brass or the other copper base alloys—so do torpedo heads and army field kitchens—condensers of battleships and oil coolers of fighting planes.

It is our first task to insure an unfailing supply of metal products vital to defense.

In addition to this grave new responsibility, we recognize our long established responsibility to our old customers. And so we are gearing our defense tasks to allow the best possible production for non-defense too. But there are many cases where it is not possible to do both.

Revere, however, has always rendered service to its customers beyond the mere supplying of metal. And, even though we may not be able, in some cases, to supply the metal you ask for, we would still like you to call for these services—to use, at no cost or obligation, our vast file of data on copper and its alloys and our Technical Advisory staff. It may be that we can cooperate with you in suggesting ways for you to replace metals or alloys needed for defense by other metals or alloys, equally efficient and immediately available.

Sincerely yours,

C. Donald Dallas
C. Donald Dallas

Guests of the National Association of Purchasing Agents:
See our exhibit in Booth Numbers 128-129 and visit our Plant
at 2200 North Natchez Avenue on Tuesday afternoon, May 27th.

Among the ASSOCIATIONS

CHICAGO ASSOCIATION OFFICERS

The Purchasing Agents Association of Chicago has named its new officers for 1941-1942 as follows:

President: H. M. Rowlette of the Whiting Corporation.

Vice Presidents: R. F. Stiles of Stewart-Warner Corporation, and M. J. Hartigan of Joseph T. Ryerson & Son, Inc.

Secretary: L. R. Seen of Borg & Beck Division, Borg-Warner Corporation.

Treasurer: Harry H. Wise of Scovill Manufacturing Company.

Harrison M. Rowlette has been Purchasing Agent of the Whiting Corporation, Harvey, Ill., since 1916. For five years he served the company as Production Manager in addition to his purchasing duties. He joined the Chicago Association in 1917, just one year after its organization. He has served three terms on the Board of Governors, and as Vice President during the past year.

SIBLEY HEADS N. E. ASSOCIATION

The New England Purchasing Agents Association has elected the following officers for the coming year:

President: Robert H. Sibley of W. F. Schrafft & Sons Corp.

Vice President: George F. Williams of Eastern Steamship Lines, Inc.

Treasurer: Henry G. Saumsiegle, City Purchasing Agent, Waltham, Mass.

National Director: Wyman S. Randall of Rust Craft Publishers, Inc.

Board of Directors (2 year term): Homer P. Griffin of Dennison Mfg. Co., Frank G. Kennedy of Simplex Wire & Cable Co.; and Clayton G. Locke of New England Brick Co.

NEW OFFICERS AT ELMIRA

The Elmira Association of Purchasing Agents has elected officers for 1941-1942 as follows:

President: Sydney W. Jones, Shepard-Niles Crane & Hoist Corp., Montour Falls, N. Y.

Vice Presidents: Fred H. Wurth, Eclipse Machine Co., Elmira, N. Y., and John Farrell, Corning Glass Works, Corning, N. Y.

Secretary: E. A. Ferguson, LeValley McLeod Kincaid Co., Elmira, N. Y.

Treasurer: F. R. Baker, American La France & Foamite Corp., Elmira, N. Y.

Directors: Leon Matson, Corning Glass Works, Corning, N. Y.; John S. Neth, Harding Bros., Inc., Elmira, N. Y.; V. D. Costello, Trayer Products Corp., Elmira, N. Y.; and R. C. S. Potter, Chemung Foundry Co., Elmira, N. Y.

NEW ORLEANS ELECTS

The New Orleans Purchasing Agents Association has named the following officers for the coming year:

President: C. F. McDougal

Vice Presidents: Frederick E. Lind and Paul E. Oliver.

Secretary: F. J. Basile.

Treasurer: G. A. Lyncker

National Director: Emile L. Morvant.

Alternate National Director: A. Grant Clark.

CENTRAL MICHIGAN BUYERS ELECT POND

New officers of the Central Michigan Association of Purchasing Agents for 1941-1942 are:

President: B. C. Pond of Gregory, Mayer & Thom Co.

Vice President: G. A. Shell of Duplex Truck Co.

Treasurer: E. J. Fillingham of Novo Engine Co.

Secretary: J. S. Hayhoe of Capital City Wrecking Co.

WASHINGTON ASSOCIATION ELECTS NEW OFFICERS

Officers of the Washington Association of Purchasing Agents for 1941-1942 have been elected as follows:

President: Herbert H. Clarke of Wheeler Osgood Sales Co., Tacoma.

Vice Presidents: M. F. McClane of Washington Co-op Egg & Poultry Assn., and Charles V. Tinker of William O. McKay Co., Seattle.

Secretary: George S. Drury of Northwest Lead Co., Seattle.

Treasurer: D. P. Brewer of Trumbull Electric Mfg. Co., Seattle.

National Director: Carroll G. Holloway of Isaacson Iron Works, Seattle.

Trustees: Harry Beetham of Luckenbach Steamship Co., Walt Fallis of Kenworth Motor Truck Corp., George P. Locker of Metropolitan Building Co., Harry H. Miller of Electrical Products Consolidated, and Herbert F. Price of Bethlehem Steel Co., all of Seattle.

CLEVELAND ASSOCIATION SPONSORS PURCHASING COURSE

The educational committee of the Cleveland Association of Purchasing Agents, headed by John Stadter of the Glidden Company, has undertaken to sponsor the course in purchasing at Fenn College, by promoting and publicizing the work there and by planning a program of practical instruction to supplement the textbook instruction. It is pro-

posed to have qualified members of the Association serve as guest lecturers during the second hour of each weekly evening meeting of the course. The first hour is devoted to a systematic study and discussion of "Industrial Purchasing—Principles and Practice," Prof. Lewis' handbook, which was prepared in cooperation with the N.A.P.A. The class is under the supervision of Paul R. Anders, dean of the School of Business Administration, and is taught by George A. Fay of the Ohio Rubber Co. Current enrollment in the course numbers twenty-three young men, six of whom are actually employed in purchasing departments of Cleveland industrial firms.

PACIFIC NORTHWEST BUYERS CONVENE AT PORTLAND

The Sixth Annual Pacific Northwest Purchasing Agents' Conference was held at the Multnomah Hotel, Portland, April 26th and 27th, with delegates present from the Oregon, Washington, and British Columbia Associations. The program was as follows:

Saturday Afternoon Business Session

Chairman: Jack Meyer of W. P. Fuller & Co., Portland.

Address: "Priorities Play the Spotlight on the Field of Substitutes," by Watt Fallis of Kenworth Motor Truck Corp., Seattle.

Discussion: led by Glenn M. Ede of Willamette Hyster Co., Portland.

Address: "Purchasing Problems During War Times," by W. McPhee of Kelly Douglas & Co., Ltd., Vancouver.

Discussion: led by Harold R. Morrison, Union Oil Co. of California, Seattle.

Address: "Protecting Your Company's Property in War Time," by W. Letham of Imperial Oil, Ltd., Vancouver.

Discussion: led by Edward R. Thatcher, Standard Oil Co. of California, Seattle.

Address: "The Purchasing Agent and His Job," by George P. Griffis of The Oregonian, Portland.

Discussion: led by W. Ball, Shell Oil Company of British Columbia, Vancouver.

Debate: "Resolved, That the Distributor Justifies His Position in Business." Affirmative side presented by R. C. Girling of Canadian Canners Western, Ltd., Vancouver; negative by Harry H. Miller of Electrical Products Consolidated, Seattle.

Saturday Evening Annual Banquet

Toastmaster: Frank J. Fitzpatrick of Monarch Forge & Machine Works, Portland.



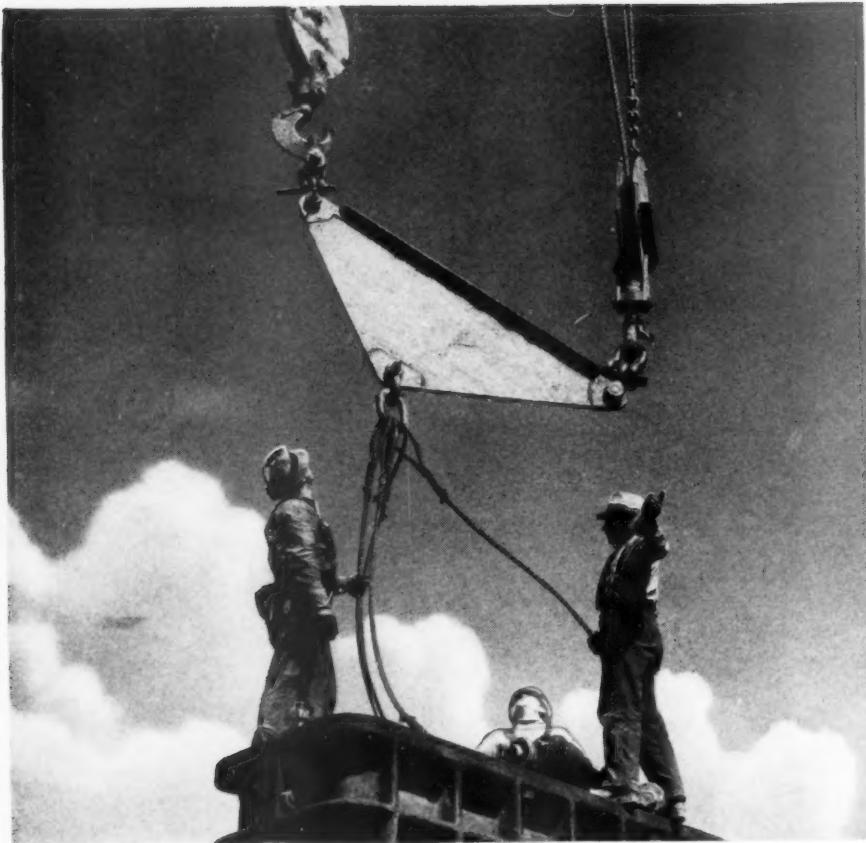
THE success of your business demands the best of equipment -- but the skill of the men who operate the equipment determines the quality of the product. Youngstown realizes the importance of the men who make pipe for you. The dependable service Youngstown pipe delivers is due to the skill, long experience and pride of craftsmanship of Youngstown men. They are ever mindful that they are working for you.

Ask your distributor for Youngstown Pipe and Tubular Products - Sheets - Plates - Conduit - Tin Plate - Bars - Rods - Wire - Nails - Tie Plates and Spikes

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YOUNGSTOWN
SHEET AND TUBE COMPANY**

Manufacturers of Carbon, Alloy and Moly Steels
General Offices - YOUNGSTOWN, OHIO

When writing The Youngstown Sheet and Tube Company please mention Purchasing



TRU-LAY PREFORMED wire rope, by lasting longer, **CONSERVES STEEL**

★ Here, as in thousands of other jobs for government and industry, men are saving steel by using TRU-LAY Preformed Wire Rope. • A ton of steel made into TRU-LAY Preformed Wire Rope often gives twice the service that it would if made into non-preformed wire rope. • The Preforming preshapes each wire and strand during manufacture, virtually eliminating internal stresses. Thus, TRU-LAY Wire Rope resists fatigue, lasts

longer, saves steel for other important Defense uses. • Below we list a few of the 137 essential products we build for INDUSTRY, AGRICULTURE and TRANSPORTATION.



CHAIN—Weed Tire Chains
Welded & Weldless Chain & Attachments
AMERICAN CHAIN DIVISION

CABLE—Tru-Lay Preformed Wire Rope
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Tru-Loc Fittings—Tru-Lay Control Cables
AMERICAN CABLE DIVISION

BRAKES—Tru-Stop Brakes for Trucks & Buses
AMERICAN CABLE DIVISION

CUTTING MACHINES—Wet Abrasive
Cutting Machines—Nibbling Machines
ANDREW C. CAMPBELL DIVISION

In Canada—Dominion Chain Company, Limited • In England—The Parsons Chain Company, Ltd., and British Wire Products, Ltd.

IN BUSINESS FOR YOUR SAFETY

AMERICAN CHAIN & CABLE COMPANY, Inc.
BRIDGEPORT • CONNECTICUT

When writing American Chain & Cable Company, Inc. please mention Purchasing

Address: "What's Right with the World?" by Dr. Bruce Baxter, President of Willamette University.
Dancing.

Sunday Morning

Golf breakfast and tournament at the Tualatin Country Club.

Ladies' Entertainment

Saturday afternoon: Tea in the Studio Room, Multnomah Hotel. Hostesses: Mrs. Gordon Lindsay, Mrs. Harold H. Cake, and Mrs. Fred Nowotny.

Saturday evening: Annual banquet and dance.

Sunday morning: Sightseeing trip, and luncheon at the Tualatin Country Club.

Committee

General Chairman, Frank J. Fitzpatrick of Monarch Forge & Machine Works.

Program, George P. Griffis of The Portland Oregonian.

Reception, Jack F. Meyer of W. P. Fuller & Co.

Entertainment, Glenn M. Ede of Willamette Hyster Co.

Banquet, Clyde Ginn of Mail-Well Envelope Co.

Ladies' Entertainment, Gordon W. Lindsey of Shell Oil Co.

Golf, William F. Gorrell of Munnell & Sherrill.

Transportation, Lee A. Baumhauer, City of Portland.

Finance, Orville K. Buckner of Electric Steel Foundry.

FORT WORTH ASSOCIATION ELECTS WILLIAMS

The Purchasing Agents Association of Fort Worth, at its annual meeting on April 15th at the Texas Hotel, elected J. R. Williams, Purchasing Agent for Tarrant County, president for the coming year. He succeeds Carl Wuerpel of the Community Public Service Company. Other officers chosen for 1941-1942 are:

Vice Presidents: H. H. Huls of Armour & Company, and A. C. Shepard of the Lone Star Gas Company.

Secretary-Treasurer: S. J. Johnston of the Acme Brick Company, re-elected to the office in which he has served the Association for more than a decade.

NEW OFFICERS AT DALLAS

The Dallas Association of Purchasing Agents has elected the following officers for 1941-1942:

President: C. F. McAuliff of the Texas Electric Railway.

Vice Presidents: John Kemendo of Geophysical Service Company, and Fred Bradley of Southern Union Gas Company.

Secretary: J. R. Millikan of Dallas Power & Light Company.

Treasurer: L. B. Mitchell of McKesson-Crowdus Company.

National Directors Roy Schweiger of Trinity Portland Cement Company.

Mr. McAuliff is a former Vice President of the N.A.P.A. for District No. 2, and was Secretary at Dallas for ten years.

**"Here's a Koppers folder
that tells
what type of roof to use
on 'black-out' buildings"**

If you are bothered with the problem of air conditioning factories of the windowless type, this folder on Koppers Water-cooled Roofs can be of great help to you.

If you are working with the problem of excluding water from structures to be put underground for national defense reasons, you may want the Koppers folder on Membrane Waterproofing.

The Koppers Library of Technical Information now includes scores of folders, booklets, data sheets crammed full of facts, figures, cost records on products and services in many fields of construction and operation. Send the coupon below for copies of the folders described on this page . . . or for the complete list of titles.



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*Prevention of
TERMITIC DAMAGE
to Buildings*

THIS FOLDER tells what to do to protect new buildings from termite attack . . . what steps can be taken to eradicate termites on existing buildings . . . what effect soil poisoning has on termites, etc. Send for the Koppers folder "Prevention of Termite Damage."

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DISINFECTANTS

THIS FOLDER tells the relative fields of usefulness of three widely-used types of disinfectants . . . which ones to choose for your purposes . . . how to buy to greatest advantage . . . how to guard against waste in disinfectant use. Send for Disinfectants folder.

KOPPERS

GAS PURIFICATION

THIS DATA SHEET on the Phenolate Process tells how H_2S can best be removed from refinery-still and natural gas. This provides sulfur at less than the cost of natural brimstone and aids the synthesis of motor fuels and chemicals from refinery-still gas.

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FOR ENGINEERING APPLICATIONS**

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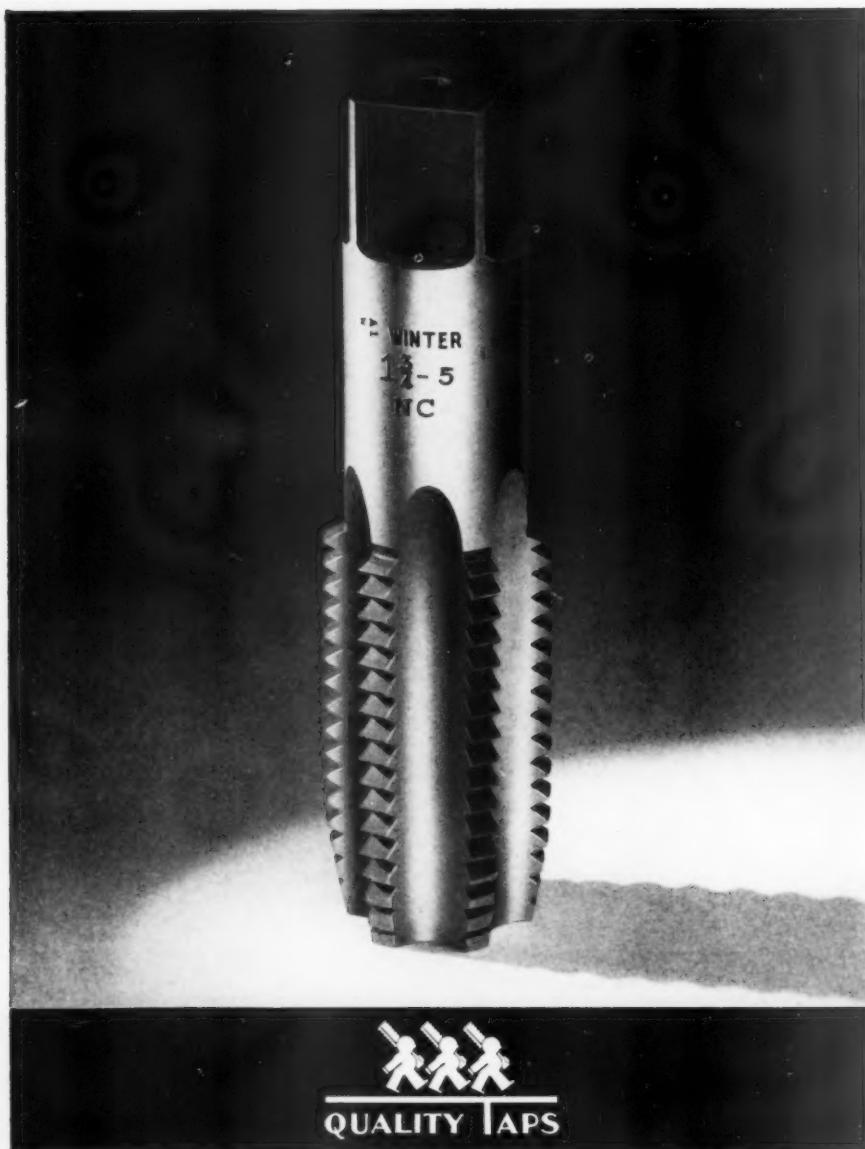
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IN DEFENSE PRODUCTION

Your tapping costs will be less with **WINTER QUALITY TAPS** on the job. Their rapid and uniform cutting action insures smooth threads and accurate assembly fit.

Skillfully made taps for today's excessive demands.

A Division of

National Twist Drill & Tool Co., Detroit, Mich.



When writing Winter Brothers Company please mention Purchasing

APRIL 1

OAKLAND—Luncheon meeting of the *East Bay Group, Northern California Association*, at the Lake Merritt Hotel. Speaker: Harry L. Davisson, Purchasing Agent and Budget Director of the City of Berkeley, "The Trials and Tribulations of Formulating a Municipal Budget."

APRIL 3

BIRMINGHAM—Luncheon meeting of the *Birmingham Association*, at the Redmont Hotel. Round table discussion, led by J. M. Bates, "Mill Supplies"; L. A. Brooks, "Grain and the Grain Market"; W. D. Lanning, "The Drug Market"; and C. T. Moates, "Electrical Supplies."

SAN FRANCISCO—"Junior Members' Day" luncheon meeting of the *Northern California Association*, at the Palace Hotel. Technicolor sound film, "Steel—Man's Servant," presented by Columbia Steel Co.

OIL CITY—Dinner meeting of the *Northwestern Pennsylvania Association*, at the Arlington Hotel. Speaker: E. E. Bonspur of the National Powder Co., who discussed the products of his company and their relation to the national defense program. Commodity discussion was led by A. W. Clinger of the Pennzoil Co., "Coal"; Thomas Servatius of Northeastern Container Co., "Paper"; and P. L. Gideon of Universal Cyclops Co., "Steel."

APRIL 4

PORTRLAND—Luncheon meeting of the *Oregon Association*, at the Mallory Hotel. Speaker: A. J. Chaput, Inspector, U. S. Reclamation Service, "Inspecting Materials for the Government."

APRIL 8

MILWAUKEE—Dinner meeting of the *Milwaukee Association*, at the Elks Club. Speaker: Paul Keyser of the General Laboratories, Socony-Vacuum Co., Brooklyn, "Petroleum Products in Today's World." Prof. Lee Lawrence presented a resume of political developments and their economic effects. The meeting was preceded by an afternoon commodity discussion.

NEW YORK—Dinner meeting of the *Metropolitan Purchasers' Assistants Club*, at Midston House. Speaker: J. Robert Kelley, Vice President and General Manager, Mill Supplies Division, Manning Maxwell & Moore, "The Problems of Your Mill Supplies Distributor." Mr. Kelley was assisted in his presentation by Gardner Stebbins and William P. Cisko. George Dietrich, Assistant Supervisor of Purchases, New York University, led a forum discussion on "The Past Purchase Record."

TULSA—Dinner meeting of the *Tulsa Association*. Speaker, W. G. Green,

Amazing Economy of FRIGIDAIRE WATER COOLERS

due to Famous
← METER-MISER !



Efficient Frigidaire Mechanism Protected
for 5 Years Against Service Expense!

• This Frigidaire Water Cooler is just what you need for most industrial purposes. It has full 10 gallons per hour capacity*—is built to stand up under the hardest kind of usage. It is powered by the world-famous Meter-Miser, the same type mechanism proven dependable and trouble-free in over 2½ million Frigidaire refrigerators and water coolers. Quiet and efficient, this Meter-Miser has an exclusive rotary design, eliminating pistons, connecting rods and other parts that cause friction and wear. Permanently sealed and oiled for life, it is protected for 5 years against any service expense.

Many Outstanding Features! In addition, Frigidaire Water Coolers are unusually compact, have stainless steel top...bonded sides...pre-cooler for speedier cooling...new Magic Action bubbler...self-cleansing tank...finger-tip temperature control...attractive appearance...optional foot pedal at slight extra cost...and many other advantages.

A Cooler for Every Need! Frigidaire offers a complete line of water coolers for every industrial and office requirement. Ask your nearest Frigidaire dealer to make a survey of your requirements. Or mail coupon below for free catalog.

*Water cooled from 80° to 50° in 80° room, with 60% of water passing through pre-cooler.

Caution! It isn't a genuine Frigidaire unless it bears the "Frigidaire" nameplate! Frigidaire products include: Water Coolers—Air Conditioners—Beverage Coolers—Refrigerating Equipment for all purposes.

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Call in
Frigidaire

The Greatest Name in Refrigeration



Frigidaire Commercial and Air Conditioning Division
General Motors Sales Corporation, Dayton, Ohio

Please send me complete water cooling catalog!
 Please make a free survey of my water cooling requirements!

Name and Company _____

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P-5



**Harness loads securely...
Lower them safely...
Move them fast...
with MACWHYTE
BRAIDED SLINGS**

DO YOUR CRANE OPERATORS, "hookers-on" cross their fingers every time the load's lifted in your plant?

THEN YOU CAN MAKE A DISCOVERY ON THIS PAGE. Look closely at the body of this sling. Notice the special construction . . . how some sling members are left-lay, some right-lay ropes. See how both are braided in a uniform spiral?

THAT'S IMPORTANT TO YOU. The patented construction gives you one of the SAFEST slings ever made. That special braided body is almost as flexible as a silken rope. Yet it has the strength of wire rope.

YOUR MEN, thanks to that special construction, can zip a Macwhyte Braided Sling on and off a load in seconds and store it in small space, because the special braided body is non-kinking and non-spinning. And **BEST** of all it is safe beyond comparison.

CASH IN ON THE DISCOVERY YOU'VE MADE by calling in a Macwhyte representative. Get the low-down and the low-cost figures on the sling that SAFELY speeds handling, Macwhyte Braided Slings.

Macwhyte Company, 2918 Fourteenth St., Kenosha, Wis.

Manufacturers of rope wire—left-&right lay braided wire rope slings—Monel Metal wire rope—Stainless Steel wire rope—Aircraft cables, aircraft tie-rods, and "Safe-Lock" Terminals—and wire ropes for all industrial requirements.

NEW YORK • PITTSBURGH • CHICAGO •
FT. WORTH • PORTLAND • SEATTLE •
SAN FRANCISCO

Ad 525

When writing Macwhyte Company please mention Purchasing

President of Engineering Laboratories, Inc. The meeting was followed by an inspection trip through the Laboratories, viewing many of the unusual devices manufactured by this organization, and a motion picture of seismographic equipment and operations, shown through courtesy of the Seismograph Service Corp.

OAKLAND—Luncheon meeting of the *East Bay Group, Northern California Association*, at the Lake Merritt Hotel. Sound film, "Sun Valley Holiday," shown by courtesy of the Union Pacific Railroad Co.

APRIL 9

MINNEAPOLIS—Executive Night dinner meeting of the *Twin City Association*, at the Hotel Radisson. Speaker: N. G. Symonds, Vice President of the Westinghouse Electric & Mfg. Co., "Supply and Demand."

KANSAS CITY—Dinner meeting of the *Kansas City Association*, at the Hotel President. The program was devoted to a consideration of the City Government, twelve department heads in the administration being present to describe the functions and operation of their respective branches.

SPRINGFIELD, OHIO—Milton Maddux of Cincinnati, N.A.P.A. Vice President for District No. 6, was guest of honor and principal speaker at a dinner meeting of the *Springfield Association*, at the Shawnee Hotel. Mr. Maddux spoke on national and district affairs.

APRIL 10

CHICAGO—Annual meeting of the *Chicago Association*, at the Hotel Sherman. Speaker: Clifton Utley, world traveler and commentator, Director of the Chicago Council of Foreign Relations, "World Developments and American Business."

BIRMINGHAM—Luncheon meeting of the *Birmingham Association*, at the Redmont Hotel. Speaker: Thomas J. Twentyman, Advertising Manager of Loveman, Joseph & Loeb, "Before You Buy It."

SAN FRANCISCO—Luncheon meeting of the *Northern California Association*, at the Palace Hotel. Speaker: Ira Lee of the Anglo California National Bank, "Shadows Over China."

APRIL 14

BOSTON—"Commodity Night" dinner meeting of the *New England Association*, at Schrafft's. The program was in charge of George J. Cronin, State Purchasing Agent, and L. E. Jones of the Heywood-Wakefield Co., General Commodity Chairman. Commodity discussion was led by the following:

Chemicals, E. B. Botsford of the A. C. Lawrence Leather Co.

Fuel, Sumner R. Keyes of Boston Edison Co.

PRESENT DAY PRACTICE IN BELT FASTENING

ARE the men in your plant familiar with the latest practice in fastening belts? We believe that every man who has anything at all to do with the maintenance of conveyor, transmission and V-Belts should know all about present day belt fastening practice because there is still a surprising loss in machine hours in many plants due to belt failures caused by the use of the wrong

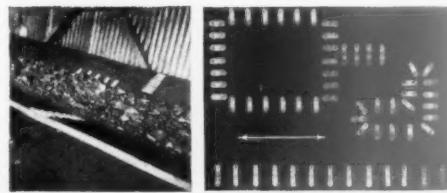
type of fastener or improper application.

Information of considerable value to men who are responsible for the purchase and maintenance of belts has been published in the bulletins listed below. We shall be glad to send any or all of them to you or to any of the men in your organization who are interested in keeping the wheels turning.

FLEXCO HD
TRADE MARK REG. U. S. PAT. OFFICE
BELT FASTENERS AND RIP PLATES

FOR CONVEYOR BELTS

Bulletin F-100 shows how to make "water-tight" butt joints in conveyor belts with Flexco HD belt fasteners. Also shows the various types of rips and patches that can be handled with these fasteners and with Flexco HD rip plates. Lists fasteners made of steel, "Monel," "Everdur" and "Promal." The use of these fasteners has increased tremendously and if you use conveyor belts from $\frac{1}{4}$ " to $1\frac{1}{2}$ " thick you will want this bulletin.



• Flexco HD Belt Fasteners on a coal conveyor showing the natural troughing of the belt. At the right is a view showing the type of repairs that can be made with Flexco HD Belt Fasteners and Rip Plates.

ALLIGATOR
TRADE MARK REG. U. S. PAT. OFFICE
STEEL BELT LACING

FOR TRANSMISSION BELTS

Bulletin A-50 shows how to handle the lacing of flat belts up to $\frac{5}{8}$ " thick. Also how to cut out a damaged or worn section and splice in a piece right at the machine without loss of time and without requiring any tool but a hammer and a cutter. Tells when to use Steel, Monel or Everdur lacing for different services and gives list prices on long lengths up to 96" in both steel and alloys. Every purchasing department and belt maintenance man should have a copy.



• Throughout the whole range of transmission belts from thin tapes to belts $\frac{5}{8}$ " thick any maintenance man can easily lace a belt with Alligator as shown here.

ALLIGATOR
TRADE MARK REG. U. S. PAT. OFFICE
V-BELT FASTENERS

FOR V-BELTS

Bulletin No. V-200 shows how the new cross-woven fabric core V-Belts are fastened with Alligator V-Belt fasteners. With this belting and these fasteners it is now possible to apply V-Belts to a much wider range of service such as line shaft and machine drives where the endless type of V-Belt could not possibly be applied. This bulletin should be in the hands of every designer of machines where V-Belts are to be used.



• Alligator "V"-Belt Fasteners as applied to a cross woven fabric core V-Belt on a machine tool. The view above shows a close-up of the fastener. This fastener is not to be used to repair broken or stretched out endless cord V-Belts.

ALLIGATOR
TRADE MARK REG. U. S. PAT. OFFICE
BELT CUTTER

FOR BELT CUTTING

Bulletin BC-300 shows how the Alligator V-Belt Cutter speeds up belt fastening work. It cuts any belt (except metal stitched) up to $\frac{1}{2}$ " thick and 8" in width with one movement of the cutter. Price each \$10.00

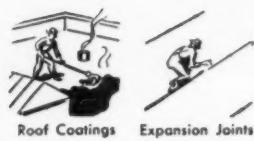


• Alligator Belt Cutter as used on the bench—or as up-ended on the floor.

Sold by supply houses everywhere

FLEXIBLE STEEL LACING CO., 4697 LEXINGTON STREET, CHICAGO, ILLINOIS

When writing Flexible Steel Lacing Co. please mention Purchasing

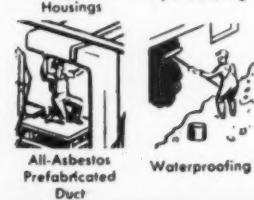
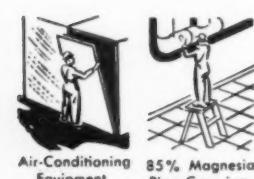
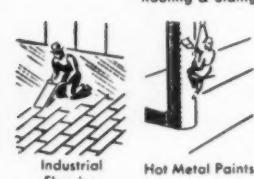
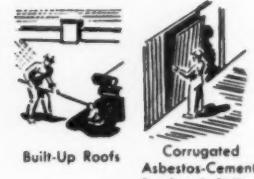


defend YOUR BUILDINGS
AGAINST FIRE AND WEATHER...



* Cut Maintenance
To The Bone With

Carey
ASBESTOS AND ASPHALT
INDUSTRIAL PRODUCTS



CLEAR the decks for the main job — PRODUCTION. You can't afford at this time to be hampered by costly upkeep and inefficiency, either in buildings or equipment.

When you buy materials, buy on the basis of known performance, minimum yearly cost and maintenance. You get these definite results when you improve with CAREY materials.

CAREY Industrial Products cut costs from foundation to roof. They offer permanent protection against fire and weather . . . reduce heat losses . . . save fuel . . . prevent dampness . . . improve air conditioning . . . minimize maintenance.

CAREY materials are the development of over sixty years of manufacturing experience backed by extensive modern research and proving in the service of industry. Their use is insurance against costly experimentation. Write for new book — "Proved Protection Against Wasted Profits" — address Dept. 68.



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Iron and Steel, Albert I. Field of Simonds Saw & Steel Co., and Ernest W. Haskins of Union Twist Drill Co.

Lumber, J. Wadsworth White of White Mfg. Co.

Non-Ferrous Metals, Frank J. Kenney of Maison-Neilan Regulator Co., George F. Monahan of the Kennecott Wire & Cable Co. (Vice President of the Rhode Island Association), and Robert C. Swanton of Winchester Repeating Arms Co. (National Director of the Connecticut Association).

Paper, Morgan K. Smith of Crocker, Burbank & Co.

Rubber and Cotton Textiles, Robert C. Kelley of Converse Rubber Co.

APRIL 15

NEW YORK — Dinner meeting of the *New York Association*, at the Builders Exchange Club. Speaker: William A. Lydgate, Editor of the Gallup Poll of public opinion, "What America Thinks." The meeting was preceded by an afternoon discussion forum on purchasing problems, priorities, shortages and bottlenecks, led by N.A.P.A. Secretary George A. Renard.

PITTSBURGH — Annual meeting of the *Pittsburgh Association*, at the William Penn Hotel. Officers as listed in this column last month were elected for the coming year. Speaker of the evening was Dean Charles S. Tippets of the University of Pittsburgh, who discussed "The Economic Effect of the Defense Program."

APRIL 16

BALTIMORE — Dinner meeting of the *Baltimore Association*, at the Lord Baltimore Hotel. Sound motion picture in technicolor, showing operations of the Pittsburgh Coal Co.

WORCESTER — Luncheon and plant inspection visit of the *Rhode Island Association*, at the Norton Company.

APRIL 17

CROCKETT, CAL. — Plant inspection visit of the *Northern California Association*, at the California & Hawaiian Sugar Refining Corp. plant, followed by dinner meeting at the Community Club House. Speaker: Newton D. Bell, world traveler and lecturer.

SPRINGFIELD — Dinner meeting of the *Western Massachusetts Association*, at the Hotel Kimball. Speaker: Stuart F. Heinritz, Editor of PURCHASING, "Purchasing for National Defense." The following officers were elected for 1941-1942:

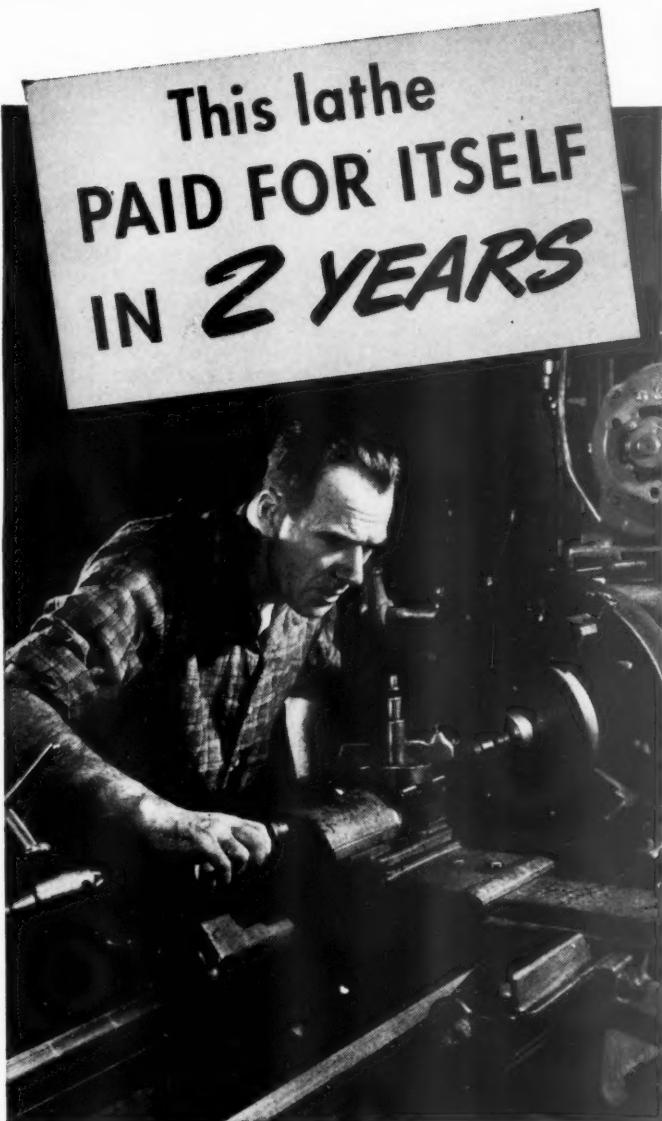
President, Robert M. Price of Package Machinery Co.

Vice President, A. L. Sanger of Brooks Bank Note Co.

Treasurer, R. A. Charpentier of Storms Drop Forging Co.

Secretary, R. L. Fortier of F. W. Sickles Co.

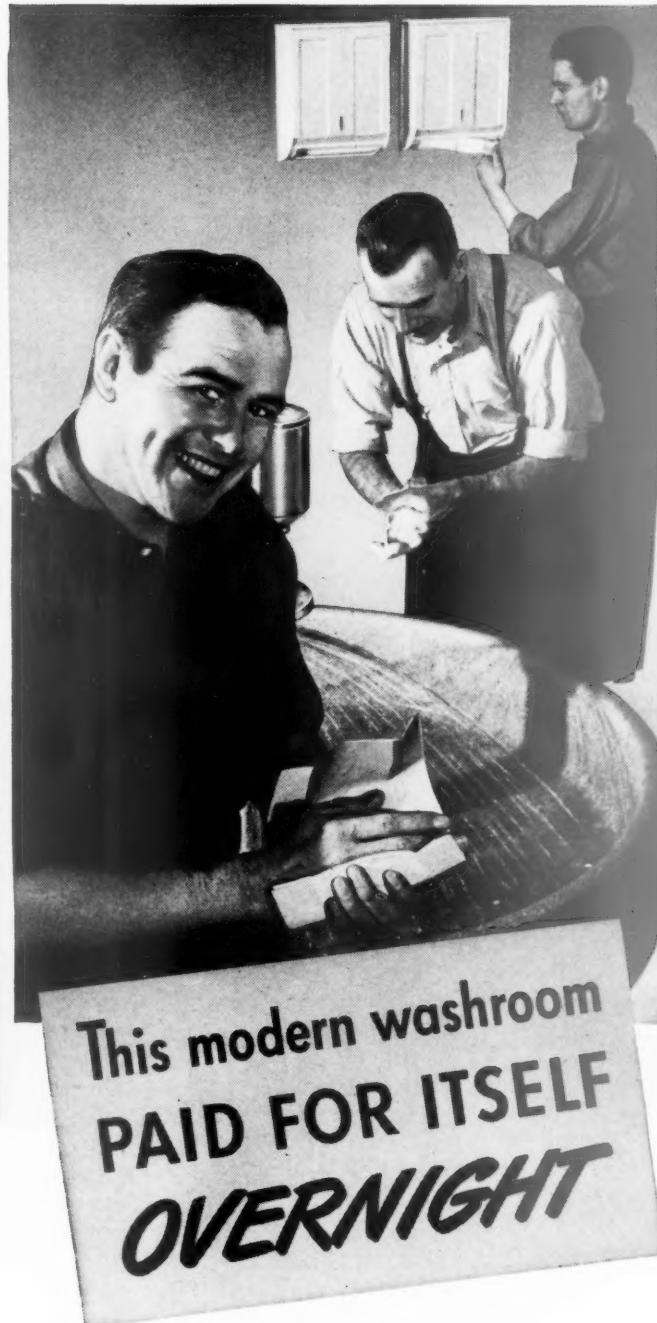
National Director, S. J. Kennedy of Springfield Gas Light Co.



**Industrial good will
pays dividends today
and every day**

IS A PLANT WASHROOM an expense or investment? "Investment!" say thousands of progressive firms today.

Obsolete washrooms, lacking hot water, soap or towels, can be costly in many ways. Colds and other diseases are spread, increasing absenteeism. "Traffic jams" may occur at peak hours and waste time. Loitering may be encouraged. Most important is the loss in workers' morale. And these hidden costs continue day after day!



The Scott Washroom Advisory Service has helped industrial leaders to modernize their washrooms for greater comfort, hygiene and economy. Write for details.

Hundreds of great companies are adopting the new "Soft-Tuff" ScotTissue Towels. Even softer than before, these amazing towels have *10 times* more rub strength! They go farther, cut costs.

Copy., 1941, Scott Paper Co., Chester, Pa. Trade Mark "Scot-Tissue". "Soft-Tuff," Reg. U. S. Pat. Office. Trade Mark "Washroom Advisory Service" Registration applied for.



NEW Soft-Tuff ScotTissue TOWELS

"CLEAN HANDS FOR BETTER HEALTH . . . BETTER WORK"

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ON EVERY SAFETY PROBLEM...AS NEAR
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Birmingham, Ala.	Kirkwood (Bridgeport)
Bisbee, Arizona	Ohio
Bluefield, W. Va.	Los Angeles, Calif.
Boston, Mass.	Milwaukee, Wisconsin
Buffalo, New York	Minneapolis, Minn.
Butte, Montana	Montgomery, W. Va.
Charleston, W. Va.	Newark, New Jersey
Chicago, Ill.	New Orleans, La.
Cincinnati, Ohio	New York, New York
Cleveland, Ohio	Norton, Virginia
Dallas, Texas	Philadelphia, Pa.
Denver, Colorado	St. Louis, Missouri
Detroit, Michigan	Salt Lake City, Utah
Fairmont, W. Va.	San Francisco, Calif.
Fort Wayne, Indiana	Seattle, Washington
Harlan, Kentucky	Tulsa, Oklahoma
Hazard, Kentucky	Uniontown, Pa.
Hazleton, Pa.	Urbana, Illinois
	Washington, D. C.

Representing the world's largest commercial producer of approved safety equipment, the M.S.A. man in your district has thorough knowledge and experience in safety, ready for you to use! Trained to serve you in every safety problem, you can count on his seasoned judgment and ability. Let him save you time and detail—in expediting fulfilment of your current needs, or in a shirt-sleeved analysis of your hazards on-the-job—without obligation.

MINE SAFETY APPLIANCES CO.
BRADDOCK, THOMAS AND MEADE STREETS
PITTSBURGH, PA.

When writing Mine Safety Appliances Co. please mention Purchasing

CLEVELAND—Dinner meeting of the *Cleveland Association*, at the Hotel Cleveland. Speaker: George E. Price, Jr., of Akron, President of the N.A.P.A. Motion picture, "Aluminum in the Making."

LOS ANGELES—Fourteenth annual Industrial Exposition sponsored by the *Los Angeles Association*, in cooperation with the Sales Managers' Association, Optimist Club, and Chamber of Commerce, at the Elks Club. Sixty informative exhibits displayed latest developments in industrial materials and supplies and business equipment.

W. J. Cheyney, Vice President of the National Retail Furniture Association, addressed a luncheon meeting on "Retail Trade Relations."

At the evening dinner meeting, speakers included: Howard S. McKay, Sales Manager of the Foster & Kleiser Co., "The Golden Rule in Purchasing"; Hon. Roger Jessup, Chairman of the Board of Supervisors, Los Angeles County, "Building Los Angeles County Industry"; and Joseph A. Hartley, President of the Braun Corp., and President of the Los Angeles Chamber of Commerce, "Let's Keep Moving."

SCHENECTADY—Annual meeting of the *Eastern New York Association*, at the Mohawk Golf Club. Speaker: Franklin D. Wolf, Assistant Manager of Distribution, General Electric Co., "Priorities." The following officers were elected for the coming year:

President, George L. Fuller, New York Power & Light Co., Albany.

Vice President, Harry L. Erlicher, General Electric Co., Schenectady.

Secretary, A. J. Tailby, A.P.W. Paper Co., Albany.

Treasurer, Richard H. Van Laer, Hudson Valley Paper Co., Albany.

National Director, Amos K. Munson, United Traction Co., Albany.

Executive Committee, J. Leland Hodgkins, H. B. Kimmey Co.; C. F. Straney, Albany Steel & Iron Supply Co.; Ward Alexander, City of Schenectady.

BIRMINGHAM—Luncheon meeting of the *Birmingham Association*, at the Redmont Hotel. Speaker: George Bell-snyder 'of Goodall-Brown Dry Goods Co.

APRIL 17-18

ST. LOUIS—Silver Anniversary meeting of the *St. Louis Association*, and tenth annual Exhibit of Member Firms' Products, at the Hotel Jefferson. More than forty informative exhibits were on display in the Gold Room and Mezzanine Floor, and were open for inspection from 10 A.M. to 10 P.M. Thursday and Friday.

At a luncheon meeting, Thursday noon, C. William Duncan, interviewer-columnist of the Philadelphia Evening Public Ledger, spoke on "Americans in the Limelight Today," presenting vivid word pictures of prominent personalities



WILLIAMS' TOOL HOLDERS FOR "ALL-OUT" PRODUCTION

A sure way to meet today's demand for maximum machine production is to "tool-up" with Williams' Holders. Not only does Williams' line provide a type for every regular operation of lathe, planer and shaper but many of these holders incorporate time and labor-saving features which production men cannot afford to overlook in the light of national needs.

Williams' design is such that you can expect

consistent, accurate production from these tools under severe conditions. Careful broaching of cutter channels, accurate machining and thorough hardening are but a few of the manufacturing precautions taken by Williams to assure dependability and top performance.

All Williams' Tool Holders are fully guaranteed, and are sold by industrial distributors everywhere. Illustrated literature will be sent on request.

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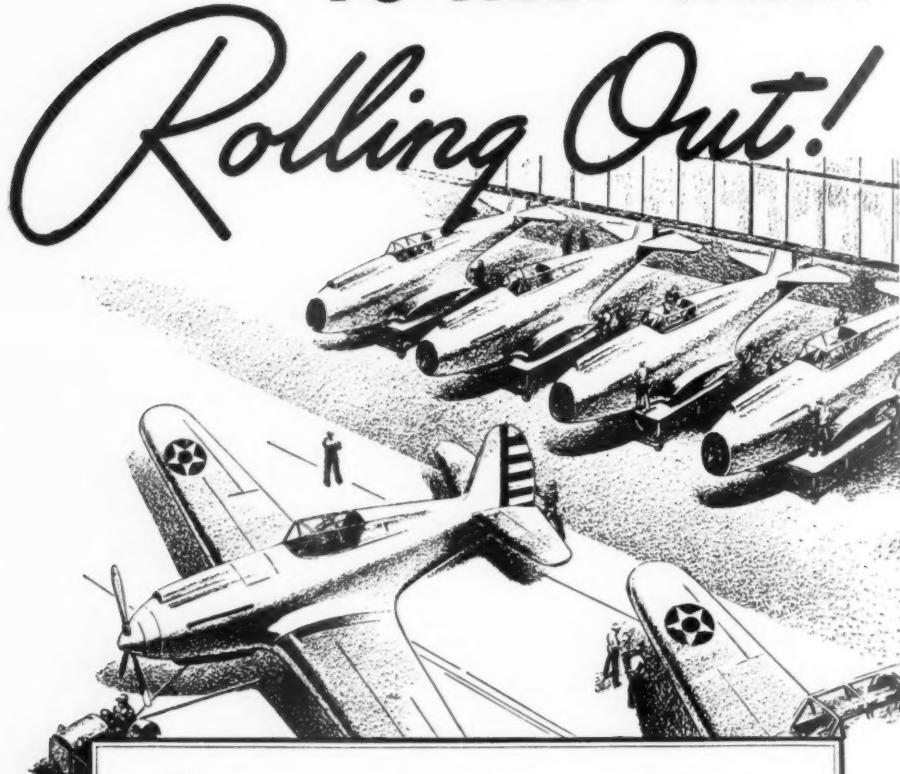
HEADQUARTERS FOR

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TO KEEP THEM



In the present national emergency, we all agree
DEFENSE COMES FIRST!

An unending avalanche of planes, ships, guns, ammunition, machinery, equipment, supplies must roll out from the production lines at ever-increasing momentum.

Roebling has geared up its electric wire and cable plant to meet the emergency. Day and night the wheels turn at top speed. Every fraction of capacity has been put to work. Electrical wires and cables in endless variety are streaming from the Roebling plant ready for defense duty.

Roebling appreciates the fine cooperation and understanding of valued customers who have experienced unavoidable shortages and shipping delays, caused by the unprecedented production situation.

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Trenton, New Jersey Branches in Principal Cities
Export Division: 19 Rector St., New York, N.Y., U.S.A.
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ROEBLING ELECTRICAL WIRES AND CABLES

When writing John A. Roebling's Sons Company please mention Purchasing

selected from 3,500 leaders in all walks of life whom he has interviewed.

At the banquet session, Thursday evening, the speaker was Harrison F. Anderson, Director of Relations with the Public, General Mills, Inc., Minneapolis. Mr. Anderson's topic was, "Executives' Obligations in the National Defense Program."

The luncheon meeting on Friday noon was a joint meeting with the Sales Managers Bureau, St. Louis Chamber of Commerce. The program was a symposium patterned on the "Information, Please" quiz, directed to a consideration of such subjects as: "How to improve the relationship between buyer and seller; Making sales departments and salesmen more effective; Some aspects of emergency or defense buying for industry; etc." The panel of experts, representing both purchasing and sales viewpoints, included Mark B. Covell, Superintendent of Supply Service, Union Electric Co. of Missouri; J. D. Eby, General Purchasing Agent, Wagner Electric Co.; J. J. Sharkey, Purchasing Agent, Western Cartridge Co.; C. A. Wolfe, Director of Purchases and Traffic, Monsanto Chemical Co.; P. M. Lorenz, District Manager, Inland Steel Co.; C. R. Morgan, Branch Manager, International Harvester Co.; R. C. Shannon, Sales Manager, Industrial Division, Socony-Vacuum Oil Co.; and L. J. Vogler, District Manager, Chase Brass & Copper Co. The questions were asked by Lee J. Bussmann of the Bussmann Mfg. Co. for the buyers, and W. E. Henges, Assistant Manager, Graybar Electric Co., for the sellers.

The Friday evening dinner meeting was designated as "Ladies' Night."

In charge of arrangements for the exhibit were William Grossman of A. Leschen & Sons Rope Co., and Erwin H. Doht of Mallinckrodt Chemical Co.

APRIL 18

ROCHESTER—Sixth annual Ladies Night dinner dance of the *Rochester Association*, at the Rochester Club. Elmer Knapp was chairman of the committee in charge.

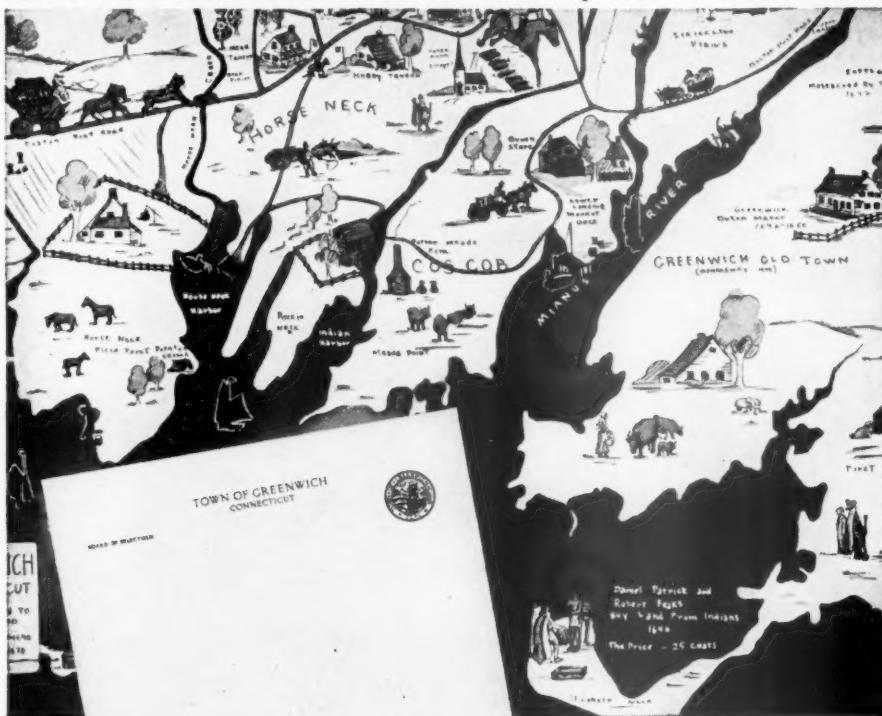
PORTLAND—Luncheon meeting of the *Oregon Association*, at the Mallory Hotel. Colored motion pictures of the destruction of the Tacoma Narrows Bridge, shown by R. B. Wright, Bridge Engineer, Public Roads Administration.

APRIL 22

TULSA—Dinner meeting of the *Tulsa Association*. A program of pictures, exhibits and talks concerning du Pont products, was in charge of J. W. Seyffert, district representative, of Joplin, Mo.

OAKLAND—Luncheon meeting of the *East Bay Group, Northern California Association*, at the Lake Merritt Hotel. Speaker: William H. Hollander, Assistant District Attorney of Alameda County, Cooperation of the Public with the F.B.I., with Particular Reference to the Fifth Column.

Prominent Users of Strathmore Letterhead Papers: No. 21 of a Series



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YOUR LETTERHEAD
for
DIGNITY AND ECONOMY

Three hundred years of fine American tradition! That's the proud history of Greenwich, Conn. To perpetuate the spirit of this Tercentenary, the Town has designed the historical map shown above. And, for its official letter-head, the Selectmen of Greenwich chose Strathmore Paper!

Quality and economy were both considerations in their choice. For the Greenwich Town government is as famous for its sound New England financing as is the town itself for beauty and dignity.

Your letterhead is *your* reputation...on paper. And you choose both wisely and well when you, too, select Strathmore.

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A letter written on STRATHMORE BOND, or STRATHMORE WRITING, costs less than 1% more than the same letter written on the cheapest paper you might buy. And on STRATHMORE PARCHMENT, or STRATHMORE SCRIPT, as fine papers as can be made, a letter costs only 2.9% more. Such plus value, for so little cost difference, is sound economy. Strathmore Paper Co., West Springfield, Mass.

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When you specify STRATHMORE for a letterhead, you know you will get a quality paper . . . with a really fine reputation . . . at a moderate cost. STRATHMORE means value. Value to your business because it makes a fine letterhead. Value, too, because it keeps the budget down.

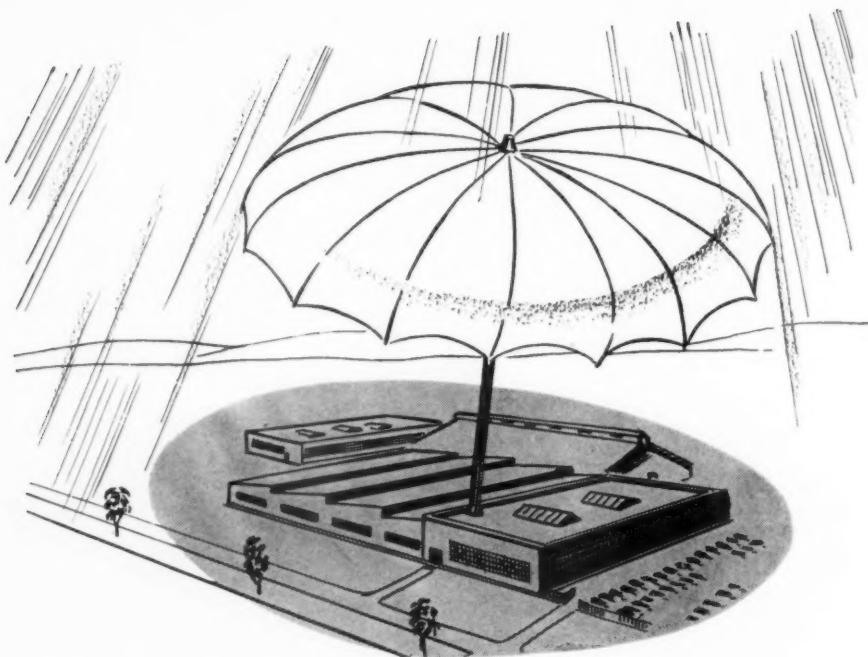
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*MAKERS
OF FINE
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NO-GLARE ON THE WINDOWS IS LIKE A SUN SHADE OVER THE PLANT



SKYCO No-Glare, a light-blue translucent glass coating, filters out the infra-red (heat producing) rays of the sun, lowers room temperature by 15%, eliminates all of the glare, and admits 94% of the light.

Why handicap your workers and their productivity with unnecessary eye-strain, heat, and discomfort? No-Glare is inexpensive, easy to brush or spray, may be applied inside or out, will not crack or peel, is unaffected by the elements but easily removed with warm water and a stiff brush.

For 20 years No-Glare has been sold on a money-back guarantee. It is used by hundreds of leading corporations.

The cost is less than $\frac{1}{2}$ c per square foot of glass covered. Each gallon covers 700 square feet. Single gallons cost \$3.50; 5's cost \$2.75; 10's cost \$3.00. In 55 gallon drums, the price is only \$2.75.

Why not decide today to eliminate glare and heat from your plant?



A PRODUCT OF THE SKYBRYTE CO. CLEVELAND, OHIO



When writing The Skybryte Co. please mention Purchasing

SYRACUSE—Annual meeting of the *Syracuse & Central New York Association*, at the Onondaga Hotel. The following officers were elected for the coming year:

President, L. W. Sanborne of Crowley's Milk Co., Binghamton.

Vice Presidents, C. J. Kuckhoff of Syracuse Stamping Co., and F. S. Thompson of Lowman Folding Box Corp.

Treasurer, L. A. Saunders of New Process Gear Corp.

Secretary, F. J. Quinn.

National Director, G. L. McCaffrey of Owen-Dyneto Div., U.S.L. Battery Corp.

Directors, L. E. Jones of Utica Knitting Co., A. D. Hanley of Bliss Steel Products Corp., H. S. Jones of Utica Gas & Electric Co., and D. A. Brewer of Brewer-Titchener Corp., Cortland.

HARTFORD—Joint meeting of the *Connecticut Association* and the *Hartford County Association*, at the Bond Hotel. Speaker: Julian G. Davis, Purchasing Agent of the N. Slater Co., Hamilton, Canada, who gave a graphic report on business and purchasing conditions in the Dominion during wartime. The meeting was preceded by an inspection visit to the Pratt & Whitney plant.

APRIL 23

ROCHESTER—"National Night" dinner meeting of the *Rochester Association*, at the Rochester Club. Speakers: George E. Price, Jr., of Akron, and Glenn C. Parsons of Buffalo, President and Vice President of the N.A.P.A. The following officers were elected for 1941-1942:

President, James A. Cooney of Retsof Mining Co.

Vice Presidents, Herbert B. Collins of Eastman Kodak Co., Charles Spieler of Delco Appliance Div., General Motors Co., and William Charity of Genesee Brewing Co.

Secretary-Treasurer, John T. Harbison of Eastman Kodak Co., Hawk-Eye Works.

Directors, A. Prentice Lapp of Stecher-Traung Lithograph Co., Raymond Whitley, City Purchasing Agent, Jesse C. Fox of The Pfaudler Co., Paul Burroughs, and Raymond Levis.

APRIL 24

CORNING, N. Y.—Ladies Night dinner meeting of the *Elmira Association*, at the Baron Steuben Hotel.

SAN FRANCISCO—Luncheon meeting of the *Northern California Association*, at the Palace Hotel. Speaker Albion Ross, Foreign Editor of the San Francisco *Chronicle*, "West of Sanity—The Orient Today."

DETROIT—Dinner meeting of the *Detroit Association*, at Webster Hall. Speaker: Dr. William J. Hale, Chief Chemist and Chemurgist of the Dow Chemical Co.

Solve DEFENSE PRODUCTION Problems with This NEW Benjamin System of Lighting with FLUORESCENT!

THIS NEW BULLETIN TELLS HOW!



BENJAMIN "LITE-LINE" SECTIONS LIKE THESE



JOINED TOGETHER LIKE THIS



FORM UNBROKEN LINES OF LIGHT

ROW ON ROW

ACROSS ENTIRE ROOM

PROVIDING 30-100 FOOTCANDLES

BENJAMIN
TRADE MARK

"LITE-LINE"
FLUORESCENT LIGHTING EQUIPMENT

Distributed Exclusively Through Electrical Wholesalers

40th Anniversary Year PIONEERS IN INDUSTRIAL LIGHTING

New Quick-to-Install "Lite-Line" System

Economically Provides More and Better Lighting to Increase Production Efficiency...This Free Bulletin Tells How!

● "Lite-Line" is your answer to the problem of economically providing more light *immediately* to increase the speed and ease of seeing, thus saving precious seconds on every production...reducing employee fatigue...and safeguarding product quality.

● Your free copy of the new "Lite-Line" Bulletin tells all about this new development which enables new plants to have new lighting installed in less time and existing plant areas to be re-lit with the least amount of plant interruption. It brings you all the data, diagrams and information you need to plan and specify "Lite-Line" lighting to provide from 30 to 100 footcandles on the working planes—shows you why these new "Lite-Lines" and other Benjamin Fluorescent Lighting Units have been selected for the exacting requirement of leading defense plants.

*Names upon request from responsible executives.

Send for Your **FREE** *Copy Today!*

BENJAMIN ELECTRIC MFG. CO.
Dept. Y, Des Plaines, Illinois

Please send by return mail new "Lite-Line" System Bulletin without cost or obligation.

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LET'S NOT TALK ABOUT "CUPS" . . .

Let's talk about NATIONAL DEFENSE ...and your part in it!

WETHER or not you are directly engaged in National Defense production . . . you play a very important part in it.

As an employer of people, either in the office or in the plant, you know what sick absenteeism can do to your own operations—how it can be a very serious problem in meeting schedules.

If you are engaged in production of defense materials, or in supplying materials or parts to those who are, mouth-borne contagion can be as disastrous as any sabotage by an enemy agent.

Unfortunately, contagion is no respecter of factory fences or office walls. An epidemic in your force quickly spreads to other organizations. So every employer of people now has a patriotic duty to keep his own group healthy. For only a people strong individually can be strong nationally.

Now, we'd like to talk about "cups" . . . Dixie Cups, the kind that are used but once and thrown away. Dixies can stop mouth-borne contagion at the drinking fountain. They serve the same purpose in the plant cafeteria for drinking water. They are also made with handles for the serving of hot drinks.

If you'd like to talk more about Dixie Cups, and how they can help you cut down your sick rolls, drop us a line. There's no obligation.



"It tastes better when you KNOW the cup is clean."

PRODUCT OF DIXIE-VORTEX COMPANY, EASTON, PA., CHICAGO, ILL.



When writing Dixie-Vortex Company, please mention Purchasing

BIRMINGHAM—Annual meeting and "Past Presidents' Night" of the *Birmingham Association*, at the Redmont Hotel. An interesting review of association history was provided as each past president briefly summarized the highlights of his administration. Those taking part were: H. L. Smith of American Cast Iron Pipe Co. (1930-1931); J. E. Shelton of W. M. Smith & Co. (1931-1932); Kent Knight of Stockham Pipe & Fittings Co. (1932-1933); LeRoy Holt of Tennessee Coal, Iron & Railroad Co. (1933-1934); H. C. Green of Gulf States Steel Co. (1934-1935); J. Forrest Kimball of Tennessee Coal, Iron & Railroad Co. (1935-1936); J. P. Penick of First National Bank (1936-1937); Michael N. Hoke of Connors Steel Co. (1937-1938); Harlan E. Cross of Sloss-Sheffield Steel & Iron Co. (1938-1939); and George H. Cole of Alabama Power Co. (1939-1940). The following officers were chosen for the coming year:

President, C. A. Lauthner.

Vice Presidents, L. C. Teague and J. W. Sledge.

Secretary, Clyde Porter.

Treasurer, George L. Wilson.

National Director, H. J. Belcher.

Alternate National Director, E. M. Evans.

† † †

APRIL 25-26

SOUTHERN PINES, N. C. — Spring meeting of the *Carolina-Virginia Association*, at Highland Pines Inn. R. C. Haberkern of the R. J. Reynolds Tobacco Co., Winston-Salem, N. C., National Director, presided at an open forum discussion of purchasing problems on Friday afternoon. This was followed by a good fellowship period for members and guests, and by the banquet session, which was addressed by Hon. J. M. Broughton, Governor of North Carolina.

Speakers at the Saturday morning session were John H. Martin of the Priorities Division, Office of Production Management, Washington, "Priorities"; and J. W. Knowlton of Charlotte, Association Economist, "The New Order in America." A question period followed Mr. Martin's address. G. C. Eichhorn of the Vick Chemical Co., Greensboro, Association President, presided at this session.

The committee on arrangements included C. F. Williams of Durham, N. C., Thomas Dixon, Jr., of Roxboro, N. C., and Wert Faulkner of Glasgow, Va.

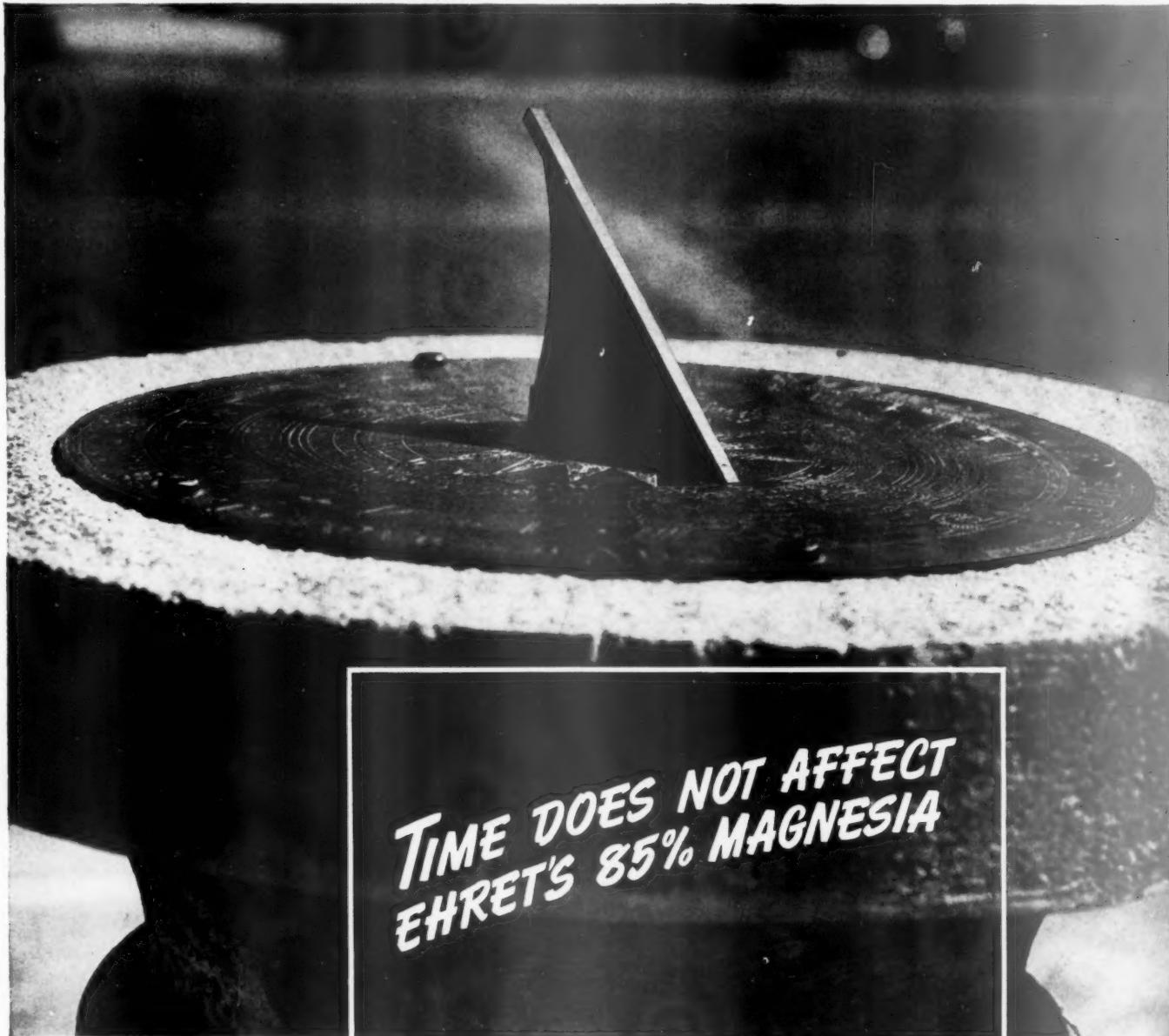
APRIL 28

PROVIDENCE—Dinner meeting of the *Rhode Island Association*, at the Narragansett Hotel. Speaker: John H. Martin of the Priorities Division, Office of Production Management, "Priority Procedure." The meeting was preceded by a discussion forum on "Transportation," led by Carl P. Rieger of the Grinnell Co.

APRIL 29

OAKLAND—Luncheon meeting of the *East Bay Group, Northern California*

Insulation Facts • Number 2



**TIME DOES NOT AFFECT
EHRET'S 85% MAGNESIA**

The passing of the years cannot reduce the insulating value of Ehret's 85% Magnesia. Full savings continue for the entire life of the protected surface. Not only will this material maintain its initially high insulating efficiency, but it can be depended upon to retain, year after year, its original strength and shape.

In addition to 85% Magnesia, the Ehret Company provides insulations for all industrial requirements. There is an Ehret Contractor or Distributor in every principal city.



EHRET MAGNESIA MANUFACTURING CO.

VALLEY FORGE • PENNSYLVANIA

MAKERS OF INDUSTRIAL INSULATIONS FOR MORE THAN 40 YEARS

When writing Ehret Magnesia Manufacturing Co. please mention Purchasing



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Notice! Hussey deliveries are made to meet Your operating schedule.

Take advantage of this extra service.

C. G. HUSSEY & COMPANY

(Division of Copper Range Co.)

Rolling Mills and General Offices

PITTSBURGH, PA.

HUSSEY

Association, at the Lake Merritt Hotel. Speaker: Henry L. Strobel of the Associated Farmers of California, Inc., "Farmers' Problems of Today."

1 1 1

**OFFICE OF PRICE ADMINISTRATION
AND CIVILIAN SUPPLY**

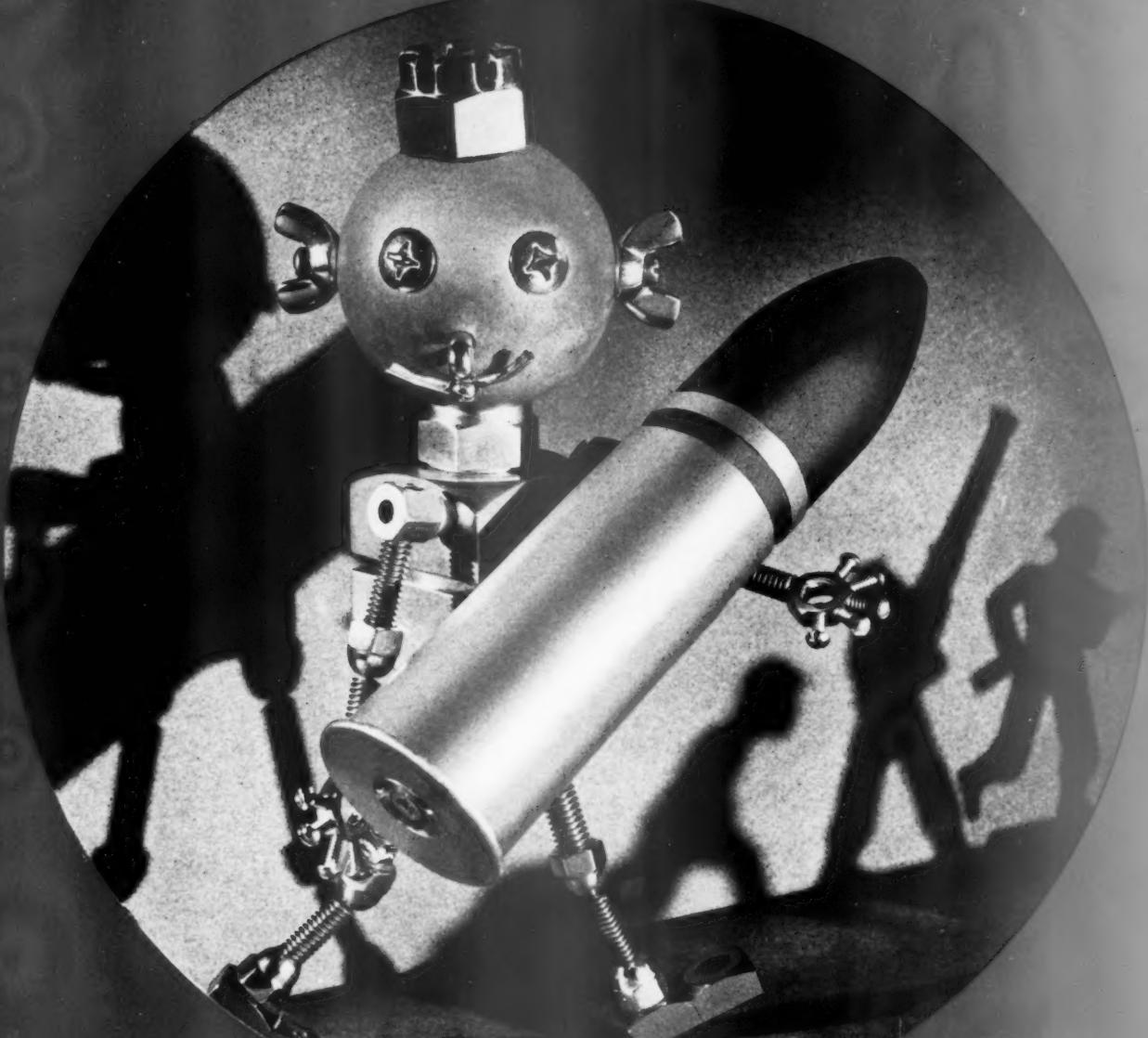
By executive order on April 11th, President Roosevelt created the Office of Price Administration and Civilian Supply, as a subdivision of the Office for Emergency Management, coordinate with the Office of Production Management. The new division combines the functions heretofore included in the Price Stabilization and Consumer divisions of the National Defense Advisory Commission, and is vested with executive authority and responsibility in place of its previous advisory capacity.

In exercising this office, the Administrator has a dual function: that of serving the other divisions of the National Defense organization, and at the same time protecting civilian interests and the national economy in respect to supplies and prices. A summary of his responsibilities clearly shows this dual nature of the office:

He must determine when a price is reasonable, and prevent profiteering or unwarranted price advances; he must determine when a purchase or inventory is reasonable, and prevent speculative accumulation, withholding and hoarding of materials. On the other hand, he must stimulate the production of materials and commodities required for civilian use, and provide for their equitable distribution after all military defense needs have been satisfied.

Specific authority is granted to the Administrator: to determine and publish maximum prices, commissions, margins, fees, charges or other elements of cost or price of materials or commodities, and take all lawful steps to secure their observance; to advise and make recommendations on the price to be paid and the purchase of materials by governmental departments and agencies; to make studies of civilian requirements, formulate programs for standards for consumer goods, utilization of substitutes, stabilizing rents and the equitable distribution of materials and commodities for civilian use; to advise and consult with OPM on procurement, production, and planning, priority and other defense program activities which may reduce the supplies of materials for civilian use.

Heading the Office of Price Administration and Civilian Supply (popularly designated as OPA) is Leon Henderson, formerly Commissioner for Price Stabilization on the National Defense Advisory Commission, and responsible official of the National Recovery Administration, Securities Exchange Commission, and Temporary National Economic Committee. In the matter of determining maximum prices, commissions, fees, etc., there is an advisory committee including the Secretary of the Treasury, the Secretary of Agriculture, the chair-



NAT SAYS . . .

**The NATIONAL job—DEFENSE—is plain,
We'll do our part with might and main.**

Carriage Bolts, from $\frac{5}{16}$ " to $\frac{3}{4}$ " diameter, any length.
Machine Bolts, from $\frac{1}{4}$ " to $1\frac{1}{2}$ " diameter, any length.
Lag Bolts, from $\frac{1}{4}$ " to $\frac{3}{4}$ " diameter, any length.
Wood Screws, steel and brass, Flat—Round—and Oval Head, sizes from No. 0 to No. 24 diameter.
Machine Screws, steel and brass, Flat—Round—and Oval and Fillister Head, sizes from No. 2 to $1\frac{1}{2}$ " diameter.
Cap Screws, Hexagon Head, U.S.S. and S.A.E. Threads.
Cap Screws, Flat—Round and Fillister Head.
Set Screws, Square Head and Headless.
Sheet Metal Screws, Types A and Z.
Phillips Recessed Head Screws and Bolts.
North Bolts, or Ribbed Neck Carriage Bolts, Oval—Bastard and Seat Head.
Plow Bolts, No. 1, No. 2, No. 3 and No. 4 Heads, all sizes. Regular and repair heads.
Elevator Bolts, No. 1 and No. 2 Heads, all sizes.
Step Bolts, sizes from $\frac{1}{4}$ " to $\frac{3}{8}$ " diameter, all lengths.

Stove Bolts, Flat—Round—Low Round—Oval and Oval Head, sizes from $\frac{1}{8}$ " to $\frac{1}{2}$ " diameter.

Tire Bolts, Fluted Shank, sizes $\frac{1}{8}$ " to $\frac{3}{8}$ " diameter.

Semi-Finished Nuts, Heavy, Regular and Light, both full and jam nut dimensions.

Slotted Nuts, coarse and fine thread series as above.

Castle Nuts, made to American Standard light dimensions (Old S.A.E. Standard), all sizes from $\frac{1}{4}$ " to $1\frac{1}{2}$ ".

Cold Punched Nuts, Hexagon and Square.

Hot Pressed Nuts, Hexagon and Square.

Machine Screw Nuts, steel and brass, Hexagon and Square, sizes from No. 2 to $1\frac{1}{2}$ " tap.

Spring Cotters, steel and brass, regular square end, and/or extended prong, sizes from $\frac{1}{32}$ " to $\frac{3}{4}$ " diameter.

Rivets, Flat—Oval—Wagon Box—Truss Head and Countersunk, all sizes up to $1\frac{1}{2}$ " diameter.

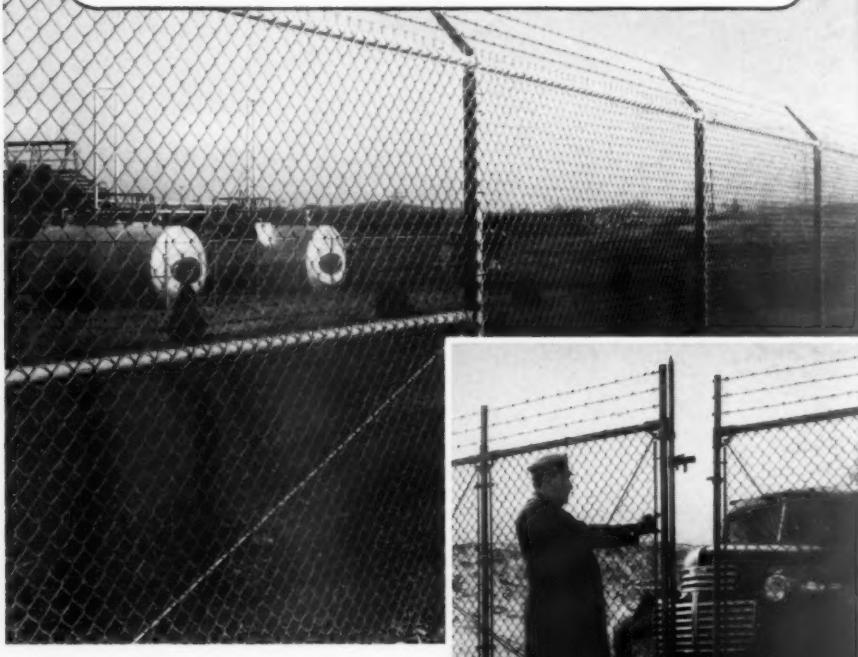
Bicycle Spokes and Nipples.

Tacks, Nails, Staples.

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THE NATIONAL SCREW & MANUFACTURING CO., CLEVELAND, OHIO

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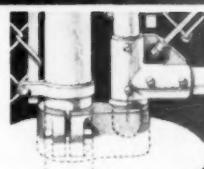
WHEN you erect good, strong Cyclone Fence around your plant you keep out thieves, saboteurs and other dangerous people. This is especially important now that blueprints, plans, dies and tools must be closely guarded. Cyclone Fence gives you complete control of movement to and from your plant. Your watchman can ask every person who enters the gates for credentials—can check every article carried out.

Cyclone's durability will keep your fence costs down. The strong H-column posts are set in concrete bases that frost won't budge. Spring couplings in top rails compensate for expansion and contraction. The copper-steel wire mesh is galvanized after weaving, leaving no cracks for rust to get started.

QUICK DELIVERY. We can meet almost any emergency delivery requirement. Our factory-trained erection crews build your fence quickly—and right. You can have Cyclone



This symbol represents the finest quality galvanizing money can buy. "12M" fights rust, makes fence last longer, saves money. Get the facts about "12M" before you buy fence.



A CYCLONE gate is easy to handle—it doesn't drag. The weight of the gate does not hang on the post. It is supported on a ball and socket hinge set in a solid concrete base.

Fence, famous for quality, at a price comparable to any of similar designs. There's no obligation in getting a recommendation and free estimate. Write for it now.

CYCLONE FENCE DIVISION

(AMERICAN STEEL & WIRE COMPANY)
Waukegan, Ill., Branches in Principal Cities
United States Steel Export Company, New York

32-Page Book on Fence



Send for our free 32-page book that tells all about fence. Crammed full of facts, specifications and illustrations. Shows 14 types—for home, school, playground, and business. Whether you need a few feet of fence or 10 miles of it, you need this valuable book. Buy no fence until you see what Cyclone has to offer.

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Waukegan, Ill. DEPT. B-51
Please mail me, without obligation, a copy of "Your Fence—How to Choose It—How to Use It."

Name.

Address.

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I am interested in fencing: Industrial; Estate; Playground; Residence; School.

Approximately feet



CYCLONE FENCE

UNITED STATES STEEL

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man of the Tariff Commission, the chairman of the Federal Trade Commission, the Federal Loan Administrator, the Director General and Associate Director General of the Office of Production Management.

Facilities for securing accurate information on profits, costs, production, capacity, and the like, are available through the SEC, Tariff Commission, FTC, Departments of Commerce and Agriculture, and the research and statistical sections of OPM. Enabling legislation is found in various provisions of recent emergency acts, as well as in World War statutes, just as in the case of OPM, and all the federal enforcement agencies are of course available for carrying out the program. Initially, however, the policy will be one of cooperation with industry on the basis of all the facts.



FUTURES MARKETS ACTIVE

A notable interest in futures of agricultural commodities, fats and oils is reflected in mounting activity in the futures markets. Industrial products such as rubber and metals show an opposite trend. At the middle of April, 2,487 contracts were outstanding in the soybean market, as compared with 1,381 contracts at the turn of the year. At the same time there were outstanding 2,460 lard contracts as compared with 1,760 at the turn of the year. Cottonseed oil futures were also up in volume. A tabulation of twenty-one futures markets made by the New York *Journal of Commerce* showed a total of 54,036 open commitments on April 17th, an increase of 1,157 contracts for the preceding week.

Speculative interest played a considerable part in this situation. Price regulation, in effect or expected in metals, meats and dairy products, made the latter markets less attractive from this standpoint.

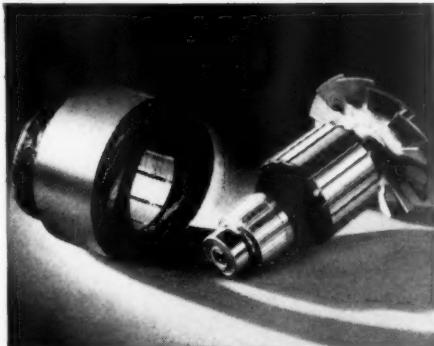


BITUMINOUS COAL PRICES WILL BE REVISED

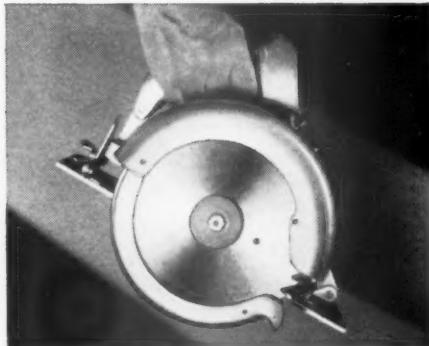
Hearings are planned by the Department of the Interior to consider changes in costs of production of bituminous coal, as a preliminary step looking toward the thorough revision of the minimum price schedule. The move is predicated on studies which indicate an 18-cent drop in average production costs resulting from rapid mechanization of the industry and substantial expansion of sales. According to Secretary Ickes' information, these changes have wiped out previous losses of major Northern mines and have sharply increased the profits of Southern operators.

The present schedule of minimum prices, which has been in effect since last October, is calculated on a cost-base covering the period of 1936 and 1937, with adjustments made to include cost changes through 1938. The Bituminous Coal Division's study of cost changes indicates that savings instituted since that time by the growth of mechanical load-

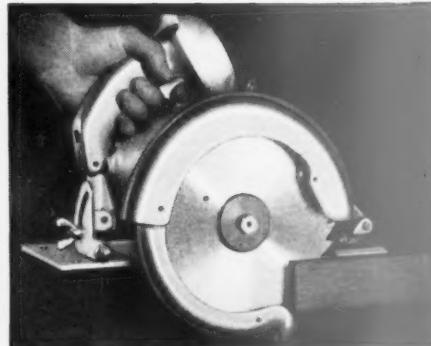
WHY Black & Decker Electric Saws are Your Best Buy--



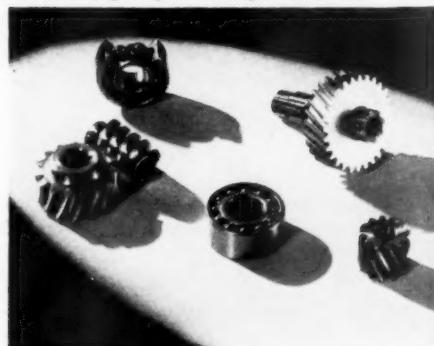
EXTRA POWER—B & D Electric Saws have Universal motors with plenty of reserve power to saw through toughest lumber without slowing up or overheating. They never falter—even when used in continuous "production-line" sawing on pre-cutting operations.



BETTER BALANCE—B & D Saws not only weigh less—they distribute their small weight to achieve perfect balance for easier and accurate sawing by the operator. As a result, fatigue and strain are greatly minimized. Operators can perform more work with less effort.



GREATER SAFETY—The utmost safety of B & D Portable Electric Saws is of paramount importance. Their maximum safety is achieved by automatic, instant-acting, ball-bearing telescoping blade guards, plus instant-release trigger switch as a further precaution.



UTMOST DEPENDABILITY—Like every other B & D Portable Electric Tool, B & D Saws are quality built throughout. Precision gears cut from tested metals; ball bearings of ample capacity—all parts manufactured and assembled to precision standards.



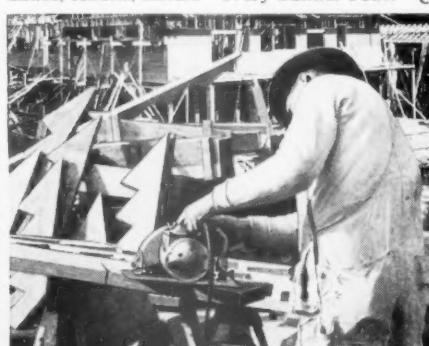
GREATER FLEXIBILITY—B & D Electric Saws perform a wider range and variety of work—instantly adapted to any sawing operation by quick adjustments for angle and depth of cut. Also have adjustable rip fences. Make dados, tenons, miters—every builder's cut.



FASTER SERVICING—One of the 25 Black & Decker Factory Service Branches is near you, with Company-owned equipment, operated by factory-trained personnel. The only such facilities in the portable electric tool industry. Fast, efficient service for B & D tool users.



MORE INDUSTRIAL USES—The power and speed of B & D Electric Saws makes them useful in more industrial applications—such as cutting iron base and non-ferrous metals. Saw illustrated is cutting sheet lead. Besides metal and wood they cut composition, tile and stone.



SPEED PLANT EXPANSION—Whole days are clipped from jobs through work planning and pre-cutting lumber with B & D Electric Saws. The B & D No. 85 Quick Saw is shown cutting stair-stringers in a fraction of hand-time. Fast B&D Saws help beat plant expansion schedules.



ASK FOR DEMONSTRATION—Your jobber will show you the Four B & D Saw models in any operation—such as the one shown above of uncrating. Black & Decker Saws are time-savers in shipping and receiving departments and for general maintenance work.

SEND FOR FREE "SAW HANDBOOK"

New and Revised Edition shows construction, operation and wide applications of B & D Saws and Accessories. Crammed full of handy facts for Purchasing officers. Write: The Black & Decker Mfg. Co., 764 Pennsylvania Ave., Towson, Md.



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Black & Decker
PORTABLE ELECTRIC TOOLS



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Remember that a letterhead must sell as well as tell... it must be well designed and then well printed on a distinctive good quality watermarked paper that should be economical in production. ADIRONDACK BOND meets these requirements. So instead of guessing, specify ADIRONDACK BOND—in bright white and 12 attractive colors with envelopes to match—and, be sure to

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FOR OVER 10 YEARS, International Paper Company has been advising users of printed advertising to "consult your printer". We took our own medicine, we CONSULTED THE PRINTERS! The result is revealing. Send for your free copy of **WE CONSULTED THE PRINTERS!** and learn how to get the 1941 BOOK OF LETTERHEADS.

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ing methods and supported by increased sales, have reduced average costs for the seven producing districts in the Appalachian area from 13 cents to 35 cents per ton. A breakdown of this study is as follows:

District 1 (central Pennsylvania). Produces 13% of Appalachian soft coal. Costs are reported as down 25 cents per ton, replacing a 20-cent loss with a 5-cent profit at the minimum price of \$2.19 per ton.

District 2 (southern West Virginia). Produces 22.6%. Costs are reported as down 22 cents per ton, replacing a 16-cent loss with a 6-cent profit at the minimum price of \$2.05 per ton.

District 3 (northern West Virginia). Produces 8%. Costs are reported as down 18 cents per ton, replacing a 1-cent profit with a 19-cent profit at the minimum price of \$1.85 per ton.

District 4 (Ohio). Produces 6.8%. Costs are reported as down 23 cents per ton, replacing a 6-cent profit with a 29-cent profit at the minimum price of \$2 per ton.

District 5 (Michigan). Produces only 0.1%.

District 6 (northern West Virginia Panhandle). Produces 1.4%. Costs are reported as down 35 cents per ton, replacing a 1-cent loss with a 34-cent profit at the minimum price of \$1.97 per ton.

District 7 (West Virginia and Virginia smokeless regions). Produces 18.2%. Costs are reported as down 16 cents per ton, replacing no-profit operations with a 16-cent profit at the minimum price of \$2.19 per ton.

District 8 (southern West Virginia, eastern Kentucky, northern Tennessee, and western Virginia). Produces 29.7%. Costs are reported as down 13 cents per ton, replacing a 0-cent profit with a 19-cent profit at the minimum price of \$2.09 per ton.

These savings will be offset by wage increases granted in this year's negotiations. A wage increase of \$1 per day has been granted by the Northern operators, comprising Districts 1 to 6. It is estimated that this will represent an added cost of 17 cents per ton in these districts. The union's demand of Southern operators, comprising Districts 7 and 8, is a wage increase of \$1.40 per day, which would be equivalent to 20 or 21 cents per ton.

1 1 1

STEEL SETS ALL-TIME HIGH

March shipments of finished steel by the U. S. Steel Corporation and subsidiaries, reached a total of 1,720,366 net tons, an all-time high record. The month's volume represented a gain of 11.1% over the previous month, 84.6% over March, 1940, and 1.1% above the previous high record reported for May, 1929. For the year to date, shipments are 60.4% ahead of the corresponding period of 1940. Despite the heavy shipments, new orders are in still greater volume, and the backlog of unfilled orders is rising.

*Defense
against
slipping*

BLAW-KNOX GRATING

A Blaw-Knox Electroforged Steel Grating Floor with the safety twisted cross bar that grips shoe soles and avoids accidents.

To protect your men and keep them on the job for National Defense, use **BLAW-KNOX OPEN FLOORING** in all places in your shops where there is a chance of falls due to underfoot conditions.

Send for paper-weight size sample showing safety cross-bar construction.

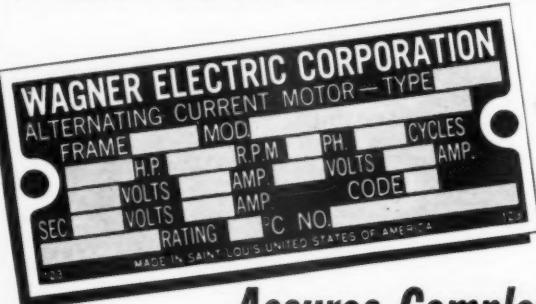
BLAW-KNOX DIVISION of Blaw-Knox Co.

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NEW YORK CHICAGO PHILADELPHIA BIRMINGHAM



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Assures Complete Satisfaction!

• BACKED BY A HALF CENTURY OF MOTOR EXPERIENCE

Wagner motors are the product of an organization with 50 years of successful manufacturing experience. All the knowledge and experience gained during those 50 years is incorporated in every Wagner motor "coming off the line" so that it too shall give many years of service.

• PROVEN DEPENDABILITY AND ECONOMY

Actual performance records of Wagner motors under the most severe operating conditions provide excellent proof of their dependability and economy. The efficient, dependable operation of Wagner motors improves the performance of the equipment they operate.

• USED BY HUNDREDS OF NATIONALLY KNOWN MANUFACTURERS

There are hundreds of thousands of Wagner motors powering stokers, refrigerators, pumps, compressors and other machinery where trouble-free motor performance is absolutely mandatory. Motor failure in certain types of machinery, such as hospital equipment, etc., might result in serious consequences. That is why manufacturers all over the country have selected Wagner motors. They Do Not Fail!

• WIDE RANGE OF TYPES AND SIZES

You can select a Wagner motor that exactly fits the job because Wagner motors are built in a wide range of types and sizes with electrical and mechanical characteristics to fit the varying requirements of all types of motor-driven equipment.

• BRANCH SALES AND SERVICE OFFICES IN TWENTY-FIVE PRINCIPAL CITIES

25 Sales and Service Branches enable the Wagner Electric Corporation to keep in close contact with its many customers. Trained sales-engineers are always ready to assist you in selecting the proper motor for your particular need.

• OTHER WAGNER PRODUCTS

Besides electric motors of all types and sizes, Wagner manufactures a large number of other electrical and automotive products: all types and sizes of power and distribution transformers; a complete line of ventilating equipment for home, office, or factory; Lockheed hydraulic brakes, brake parts and fluid; hydraulic bridge brakes; air brakes; and other automotive equipment.

M41-17

Write for More Complete Information WAGNER MAKES ALL TYPES & SIZES OF MOTORS

Type RP Squirrel-Cage Open—Ven- tilated 1/6 to 400 hp Polyphase	Type CP Squirrel-Cage Totally- Enclosed, Fan-Cooled 1 1/2 to 125 hp Polyphase	Type RS Wound Rotor (Slip-Ring) 1 to 250 hp Polyphase
Type RA Single-Phase Repulsion- Start- Induction 1/8 to 15 hp	Type RK Single-Phase Capacitor- Start, Induction-Run 1/8 to 3/4 hp	Type RD Direct-Current (Compound Wound) 1/8 to 3 hp

Wagner Electric Corporation

6400 Plymouth Avenue, Saint Louis, Mo., U.S.A.

MOTORS • TRANSFORMERS • FANS • BRAKES

Purchase Contracts Mean What They Say

(Continued from page 61)

damage was resulting to leather buffed from the latter part of the final shipments on the first blanket order. This left the Purchasing Agent between the seller who wanted shipping instructions on the new blanket order and the superintendent who didn't want to risk further damage to his product. Under these circumstances, the Purchasing Agent refused to give instructions but neglected to set forth in writing the reason for refusing to take in the sandpaper. The buyer offered to try representative rolls of the sandpaper on the second blanket order but this was refused by the vendor. The matter dragged on and suit was threatened by the seller in the fall. The buyer stated that if such suit was brought that the buyer would bring countersuit for damage sustained. Both suits were filed and tried together.

In the original action the seller, as plaintiff, sought to recover the purchase price of the sandpaper ordered by the defendant under the second blanket order dated April 15, 1936 on the ground that title to the goods passed to the defendant, and also sought to recover storage charges and interest. The defendant pleaded general denial and breach of warranty. In cross action the buyer, as plaintiff, sought to recover damage alleged to have been caused by defective merchandise furnished under the first blanket order dated May 16, 1934, and also sought to recover damages alleged to have been caused by having to purchase merchandise elsewhere at a price higher than that agreed upon in the order of April 15, 1936.

In the cross action, the seller pleaded general denial and waiver of any alleged breach of warranty.

The cases were tried simultaneously as stated. The seller claimed the product was sold as a trade-marked article without warranty expressed or implied; and that the two blanket orders were separate contracts.

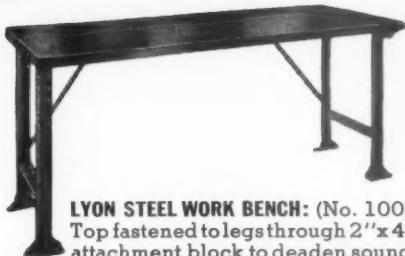
No Evidence But the Contract

The buyer was not permitted to introduce evidence in the suit against him relative to circumstances prior to the placing of the second blanket order in April, 1936. Every objection to the introduction of such evidence was sustained on the ground that the second blanket order was the only document in question, and that prior circumstances were immaterial, irrelevant, etc. Thus the buyer was not permitted to develop the background of the transaction as a normal part of the second blanket order. This happened because the Purchasing Agent erred in not placing on the face of that second blanket order the fact that the order represented "continuing business" and that the use of the goods was known to the seller, who guaranteed to supply a uniform product suitable and satisfactory for that purpose. If

HERE'S PRACTICAL HELP
for Faster Handling of
Parts in Work... Control
and Protection of Tools
... Increase of Production Floor Space.



LYON STEEL BENCH LEGS: (No. 2993-11). Durable, for wood and steel bench tops, wood tables, machine mountings and bulk storage platforms. Top and bottom cross members are punched on 3 inch centers for attachment of top and shelf. Upright members punched for attaching stringers or cross bracing. Exclusive features: (1) riveted and welded; (2) reversible front to rear. 28" deep, 32-1/4" high. Finished in green baked enamel. Shipped completely assembled. Ship. wt. 27 lbs. Price \$2.95.



LYON STEEL WORK BENCH: (No. 100). Top fastened to legs through 2" x 4" attachment block to deaden sound. Edges of steel top are flanged down 1-3/4" and back 1-1/2" on both front and rear edges for strength and smoothness. 28" deep, 72" long, 34" high. Finished in green baked enamel. Shipped knocked down. Ship. wt. 145 lbs. Price \$14.30.



Patent No. 2,202,427

LYON "ADJUSTABLE BACK" STEEL STOOL: (No. 1226). Welded, non-breakable. Unusually large, comfortable seat area — 187 square inches. Long life pressed wood seat applied over steel for strength. Forged steel dome shaped foot, 1-1/8" in diameter, assures easy sliding without damage to floors. Green baked enamel finish. Height — 26". Shipped assembled and bundled — not packed or crated. Ship. wt. 14.1 lbs. Price \$2.85.



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WAREHOUSE STOCKS AT
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LYON Service
SHOP EQUIPMENT

LYON METAL PRODUCTS, INCORPORATED, Aurora, Illinois

Delivery
RIGHT NOW



Pat. Applied For

ASSEMBLER'S BENCH BIN: (No. 2963). Accessible storage of 12 different parts in only one square foot of bench area. Individual hoppers (filled from top) are self-feeding. Built of steel and finished in green baked enamel. 16-1/4" wide, 9-1/4" deep, 15" high—overall. Hopper front openings are each 4" wide and 3" high. Loading compartments at top are 4" wide and 3" deep. Ship. wt. 19 lbs. Price \$5.70.



LYON TOOL STAND: (No. 2970-17). Portable. Flanged top and trays prevent tools and parts from falling off. Includes drawer and padlock attachment — no padlock. Sturdily built — will remain rigid after hard use. Width 24", depth 24", height, with swivel-type steel casters, 37-1/8". Green baked enamel finish. Shipped set up. Ship. wt. 80 lbs. Price \$11.35.

LYON SHOPROBE: (No. 2065-12). Portable. Double face — 20 person capacity. Equipped with 20 non-removable coat hangers. Accessory equipment — chain to run through sleeve of coat and lock with a padlock (not furnished) to the compartment door. Diamond perforated doors. Overall size — 50" wide, 36" deep, 75-7/8" high. Finished in green baked enamel. Shipped set up with standards and base detached. Ship. wt. 415 lbs. Price \$52.10 — without chains. (Price of chains 60c each. Ship. wt. of chains 2 lbs. ea.)



11-1/2" deep, 10-5/8" high. Shelf width, 10-13/16". Finished in green baked enamel. Ship. wt. 34 lbs. Price \$11.90 each.

ADJUSTABLE SORTING RACK: (No. 2285-1). Has 9 shelves, adjustable every 1/2", forming 12 compartments. Shelves are equipped with label holders. Bottom flanged for stacking. Two racks are illustrated. Sorts mail, shipping papers, job tickets, and stores small tools and sandpaper. 34-1/4" wide, 11-1/2" deep, 10-5/8" high. Shelf width, 10-13/16". Finished in green baked enamel. Ship. wt. 34 lbs. Price \$11.90 each.

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*A Positive Answer
to an Important Question*

Yes, you can be certain of UNFAILING PERFORMANCE from every single HOLO-KROME Completely Cold Forged Screw — Holo-Krome Guarantees it!

Sold thru Authorized Stock Carrying Distributors



When writing The Holo-Krome Screw Corp. please mention Purchasing

that had been done, the buyer would have been permitted to introduce evidence which seemed material to the case and which would establish the purpose and method of placing the original and subsequent orders.

The decisions were against the buyer in both cases and were appealed on exceptions to the State Supreme Court. The following "Findings of Fact and Rulings of Law" was made by the judge of the lower court and presented in the bill of exceptions by both parties.

"I find that title to the goods recovered by the first blanket order passed to the buyer."

"I find that there was no express or implied warranty made by the seller to the buyer that the buffing paper in either order was fit for any particular use by the buyer."

"I find that there was an implied warranty with respect to each of the blanket orders that the buffing paper would be reasonably uniform as to abrasive qualities in accordance with the standard originally selected by the buyer."

"I find that the last four shipments under the first blanket order did not possess the reasonable uniformity of fineness which characterized the earlier shipments under the same order."

"I find that the notice given by the buyer to the seller in October 1936, following the discovery during the spring of 1936 that the paper was scratching its leather because of the lack of uniformity, was not given within a reasonable time, and was not an assertion of a violation of the legal rights of the buyer."

"I rule that the first blanket order and second blanket order constituted two separate, entire and distinct contracts."

"No evidence was introduced tending to show whether the goods held for the buyer under the second blanket order conformed or failed to conform to the reasonable uniformity of abrasive qualities required."

Arguments were duly made and exceptions over-ruled by the higher court. The decision read:

"The ruling that both orders constituted separate contracts was right. One order was given in 1934 and the second in 1936. Each order contained two distinct items with a particular price for each item. The purchase under the order of 1934 was for a different lot of goods from that included in the order of 1936, although both purchases were for similar goods. Each transaction was a complete contract in itself. It is plain that the intention of the parties, gathered from the orders of purchase in the light of the circumstances in which they were given, was that each order constituted a separate and distinct purchase of goods. There was no error in ruling that the orders constituted separate, entire and distinct contracts."

"A corporate buyer, specifying that it refused to accept sandpaper ordered by it solely because other such paper, purchased by it on prior order, was not of same quality as paper previously sup-

plied and damaged leather manufactured by buyer, was precluded from raising point that paper included in such prior order did not comply with implied warranty that it had abrasive qualities of reasonable uniformity, in seller's action for price of paper subsequently ordered.

"A seller's breach of warranty in one transaction is not sufficient ground for buyer to rescind a second independent and separate sale.

"A notice to sellers by buyer that sandpaper purchased was scratching leather manufactured by buyer because of lack of implied warrant or uniformity of abrasive qualities was not given within reasonable time in October after spring during which buyer discovered such fact."

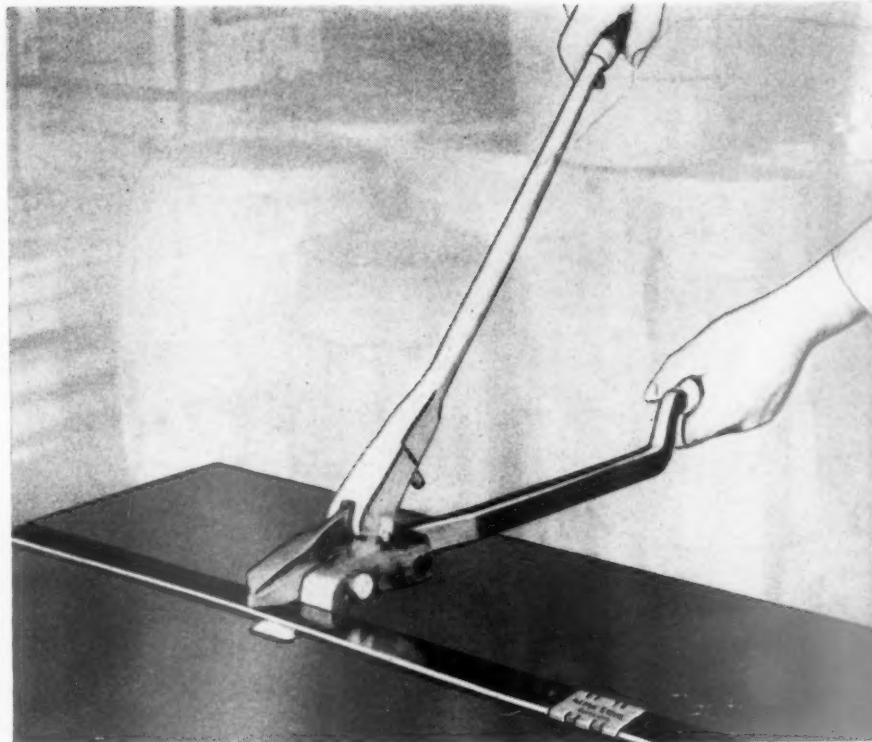
From the filing of the suits to the decision of the Supreme Court about three and one half years elapsed. As a result of this decision, the sandpaper was delivered and paid for with storage costs and interest charges. The sandpaper was received and examination and experimental use revealed that recoupment might be a possibility. Whether or not the interval during which the goods were in storage while the cases were being tried would be held as running against "reasonable notice" is a legal question the court would have to decide. It wasn't worth while, even though it was an interesting point.

Good Faith and Good Contracts

From this case it is evident that a Purchasing Agent should consider the implications of every blanket order he signs. He should not be lulled into a false sense of security that the seller will always give in to his interpretation of the order. Circumstances may change and the seller may decide that the only recourse is that of suit. And then there will be expense and annoyance which should have been prevented by a more careful writing of the order. A multiplicity of clauses on a purchase order or a sales order is not necessarily desirable, for each particular transaction deserves thought. Many clauses in fine print may or may not prevent a disagreement. It is better to make your agreement a true meeting of minds and express it on the face of or as a part of your purchase order.

A Purchasing Agent is employed to keep his company out of legal difficulty—not to get into it. If attempt was made to stop every loophole or remove every possibility of disagreement, business would stop while the legal documents were being drawn. That takes too much time and the Purchasing Agent is supposed to have as a part of his training the ability to get things done without constant recourse to the legal department. That means that a Purchasing Agent has to have faith in his suppliers and has to create a similar faith on the part of the seller in the good intention of the buyer. That is where common sense, fair dealing, and experience dictate how a thing should be done and the type of documents that surround the transaction.

Finally, a Purchasing Agent hasn't



Above: Snipping the straps is all that is necessary to prepare this bundle of steel sheets for your production line.

Cut RECEIVING COSTS

Skid-load shipments cut receiving room costs—enable easier, faster handling.

- Every time your receiving department snips the straps from an Acme Steelstrapped shipment they are actually snipping receiving costs . . . Purchasing agents are well aware that the price on the order is *not* the complete cost. Receiving, storing and distribution must be added.

By applying the Acme Steelstrap Process, many suppliers of all types of products are eliminating unnecessary "extra" costs for their customers. Unpacking and unloading are easier and faster. A snip of each band and a freight car is ready for unloading. Time-consuming, complicated bracing is not necessary when strong, protective Acme Unit-Load Bands are used. Damage and the consequent controversies are eliminated.



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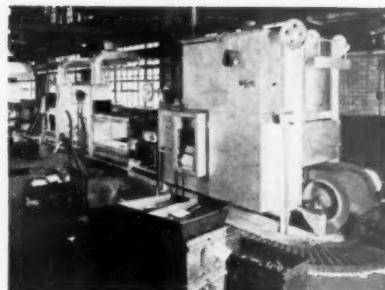
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got time to go to court very often. At the best the procedure is slow, and the tempo is something to which the industrial buyer and salesman is unaccustomed. These reasons, together with costs involved, will make one avoid court procedure except as a last resort. Once there, the rules of evidence and legal procedure will prevail. It is better to prepare the purchase agreement, long or short, with such clarity that there can be no misunderstanding. The time thus spent will be well spent.

111 Determination of Purchase Quantities

(Continued from page 77)

suggested in this paper constitute a useful tool which the Purchasing Agent can apply in balancing and analyzing the cost factors in the problem to determine the economical purchase quantity.

Without the use of mathematical methods, the Purchasing Agent might appraise the underlying cost factors with precision but arrive at a wrong conclusion through his inability to correlate those factors in reaching a final decision. The mathematical formulae insure a solution which will be *at least as accurate* as the Purchasing Agent's estimates of the pertinent cost factors.

c. After he has applied a quantitative treatment to the cost factors in a particular situation, the Purchasing Agent may wish to modify the purchase quantity slightly in consideration of some intangible or miscellaneous factor which could not be included in the quantitative analysis. In this connection, quantitative treatment is valuable in two respects:

1. It indicates conclusively the economical quantity to purchase in view of all the cost factors in the situation, and

2. It indicates clearly the increase in unit costs that will result from any modifications of the purchase quantity to take an additional factor into account.

In other words, the quantitative treatment simplifies and clarifies the issue by resolving all of the cost factors in the problem and gives the Purchasing Agent a basic figure close to the correct solution, which can be easily modified or adjusted in view of any additional miscellaneous or intangible elements that may be present.

A Standard Procedure

The conclusion of this paper is in the nature of a suggested procedure for the determination of purchase quantities, which indicates the part that quantitative methods play in the analysis of purchase quantity problems.

1. The Purchasing Agent should consider all of the factors which might conceivably influence the purchase quantity and isolate those which are pertinent to the particular problem at hand.

2. A quantitative judgment should be formulated and expressed with regard



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to all of the cost factors which are present in the problem and with regard to any other factors which may be appraised on a quantitative basis.

3. A suitable quantitative treatment should be applied to balance and analyze the Purchasing Agent's judgments with regard to the cost factors in the situation and to establish that one quantity which will give the lowest unit cost. In this connection, it is clear that the quantitative methods in no sense obviate the use of judgment on the part of the Purchasing Agent, but are applied only after the Purchasing Agent has formulated judgments with regard to all of the elements in the problem.

4. The economical purchase quantity should be modified to take into account any elements which could not be expressed on a quantitative basis. These modifications and adjustments should be made with a full realization of the increases in unit costs that are incident to them.

Quantitative methods are, then, a very effective tool which the Purchasing Agent may use in appraising his judgments regarding the cost factors affecting purchase quantities, and full play is given to the Purchasing Agent's judgment both before and after they serve their purpose in the analysis of purchase quantity problems.



HEAVY RUBBER CONSUMPTION

Consumption of rubber by American manufacturers is running at capacity levels, and takings of crude rubber continues heavy in anticipation of increasing needs in the national defense program. The Rubber Manufacturers Association reported consumption of 66,821 long tons in March, the highest monthly figure on record. This was 9.5% above the previous month and 33.1% above March, 1940.

Meanwhile, stocks of crude rubber in the United States increased to 373,581 long tons. Of this, 209,979 tons were in the hands of industry and dealers, representing 3.3 months' supply at current rates of use. Stocks in the hands of Government were up to 163,602 long tons, which brings available supply up to 5.8 months' requirements.

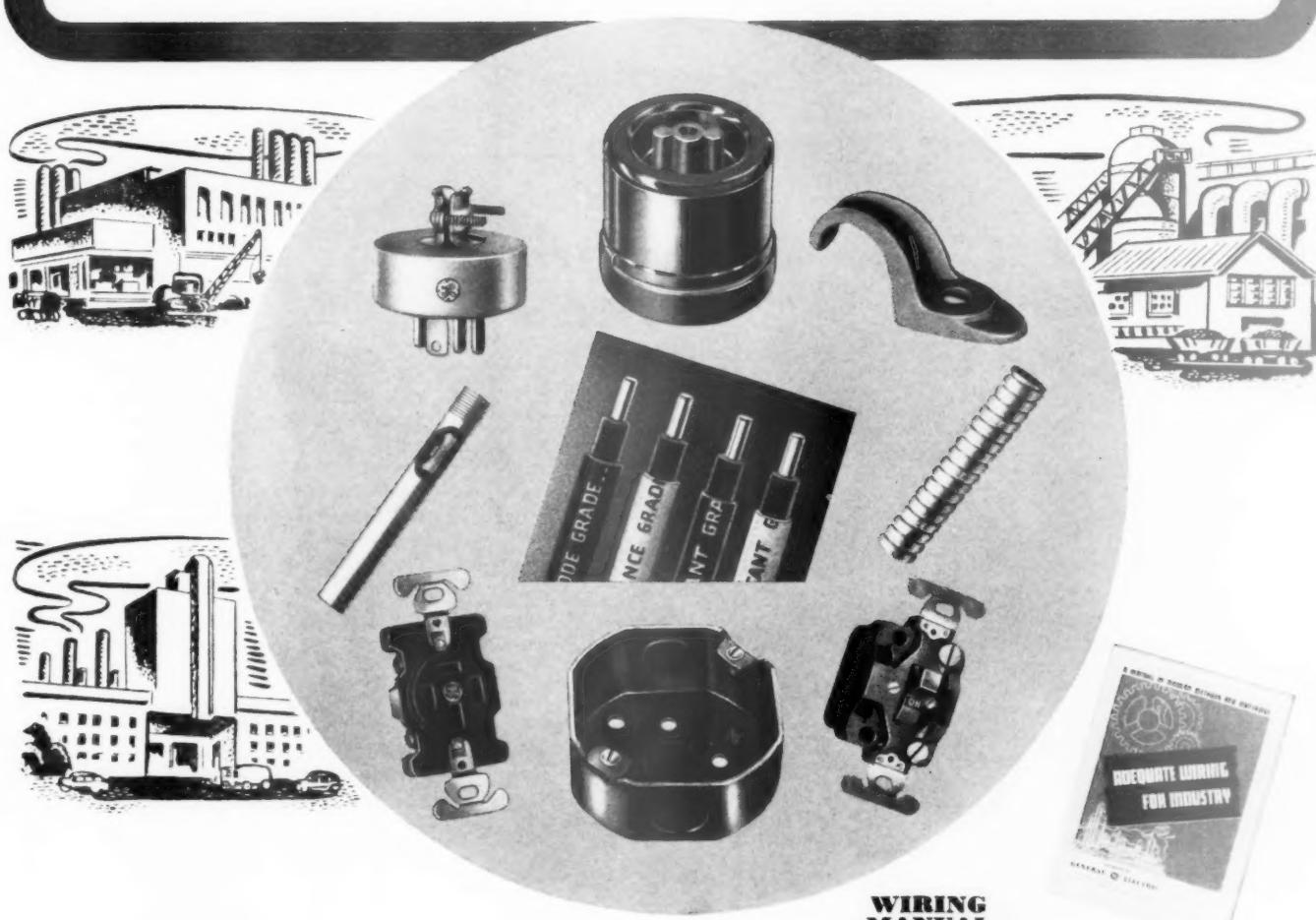
Crude rubber afloat to the United States at the end of March was 140,228 long tons, an increase of 17.8% over the previous month and 47% over the figure of a year ago. The addition of this tonnage would bring the total of visible supplies of crude rubber in and on the way to this country up to 8.2 months' supply.



WESTINGHOUSE ANNOUNCES HIPERSIL

The Westinghouse Electric & Mfg. Co. last month announced the development of Hipersil, an improved magnetic material which, used in transformer cores, is said to have one-third greater flux-carrying capacity than the best conventional silicon steel. It requires no more magnetizing force, and shows no

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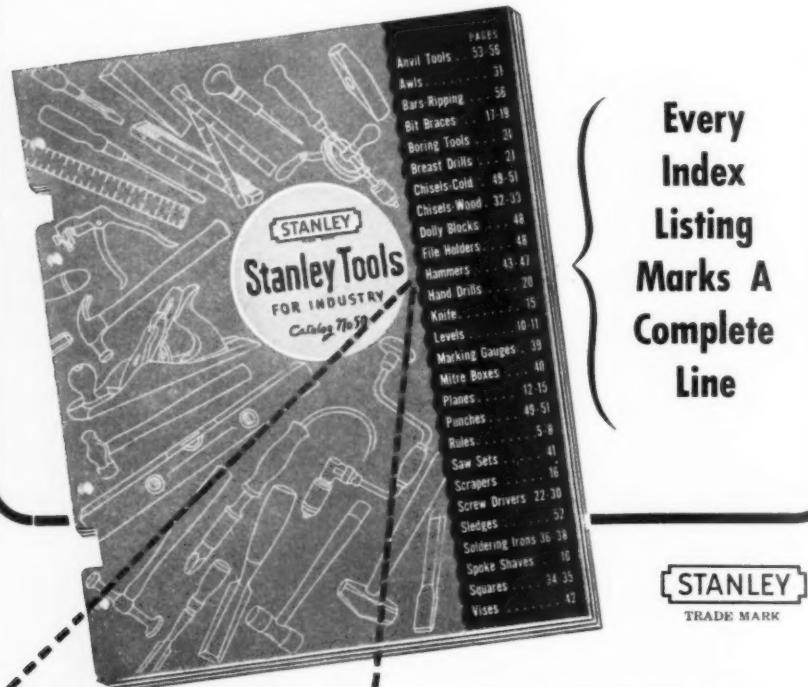
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greater loss, and the increased magnetic flux causes no increase in sound level. In its first application it has reduced the size and weight of distribution transformers by as much as 25%, has facilitated reduction of copper losses by about 10%, and thereby has increased short-time overload capacity.

Some of the advantages accruing from these improvements include an extension of prevailing practice in the mounting of single-phase transformers. Heretofore, the largest transformer that could be mounted on a pole was 75 kva. With Hipersil, a 100-kva transformer can be so mounted. Similarly, when three transformers have been hung on a single cross-arm, the size has been limited to about 37½ kva each, and this limit can now be increased to 50 kva.

Improvement in voltage regulation gives to the system operator more electrical capacity per dollar of investment. Normally energy must be supplied to the consumer at a specified maximum regulation; therefore if the transformer can carry a larger load safely to reach a given voltage regulation, it has an increased useful capacity.

The newly developed magnetic material benefits the transformer user in still another way. Distribution transformer cores made of it are assembled in two pieces that can be taken apart easily for the replacement of coils if that becomes necessary. Labor costs formerly made it uneconomical to repair transformers smaller than 10-kva. With the new structure, it is economical to keep a stock of spare coils and repair all transformers, regardless of size.

TUBING HANDBOOK

A loose leaf handbook of welded steel tubing is available from the Formed Steel Institute of Cleveland, Ohio. This book sells for \$1.00 and includes all kinds of information about welded steel tubing as well as many pages of useful engineering data.

ALABAMA ALUMINUM PLANT

On April 1st, power was turned on at the Reynolds Metals Company alumina reduction plant at Lister, Alabama, starting the first independent aluminum plant in the nation. Ground was broken for the new plant on November 1st. The Lister properties of the Reynolds Company will have an annual capacity of forty million pounds of aluminum ingot by July.

"Forty million pounds of ingot aluminum from Lister and sixty million pounds through our Bonneville plant, added to the six hundred and ninety million pounds estimated to be available in July through the Aluminum Company of America will not only take care of our increased defense requirements but will be sufficient to supply civilian needs as well," said Richard S. Reynolds, Sr., President. "This is

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PURCHASING

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our answer," he asserted, "to present hysteria as to aluminum shortages. We went to work long before the current emergency was declared because we did not share the prevailing optimism over there being no possibility of aluminum scarcity. Now that we have proven that new sources of supply can be brought in quickly, we do not share the prevailing alarm."

Ingot moulding units to be built in the Bonneville-Grand Coulee section of the Columbia River in Oregon were started April first to be completed by August first. The West Coast production will total sixty million pounds of aluminum per year.

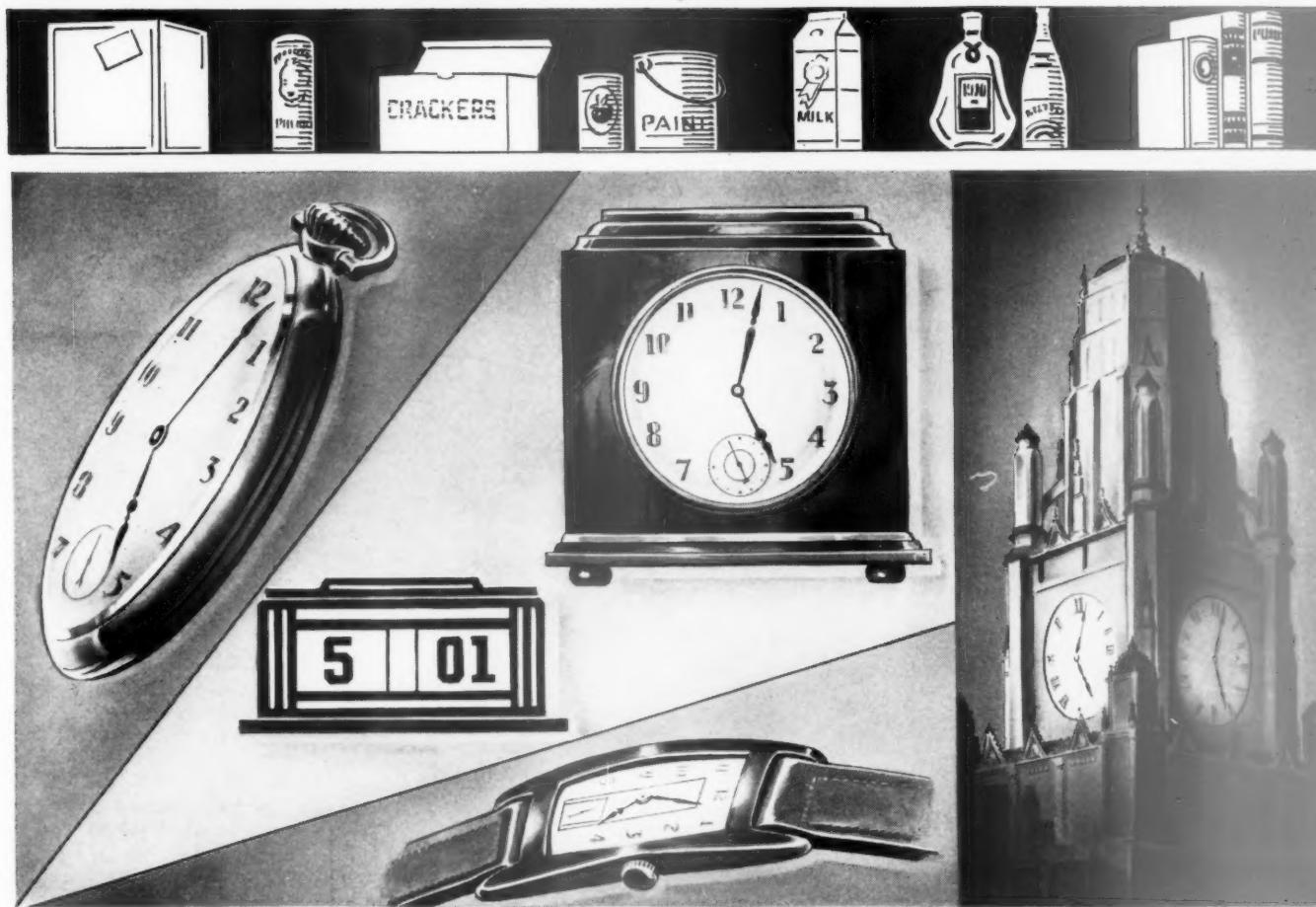
These ingot facilities are the only such units in the country aside from those of the Aluminum Company of America. Reynolds now becomes the nation's second source of supply for the virgin metal.

The alumina and ingot plants and offices in Lister will employ about 350 persons, and 600 more will work in a \$17,500,000 rolling mill and rod plant, ground for which was broken ten days ago on the Lister property. More than 500 carloads of machinery will go into the rolling and rod mills, where sheet aluminum up to 100 inches wide and to any length desired and rod up to six inches in diameter will be rolled.

"The Reynolds Company has not made ingot aluminum before," Mr. Reynolds declared. "But we and others in the industry, with Government help, can duplicate construction many times at a speed with which we built at Lister and which we will repeat at Bonneville. Germany through its own and other accessible sources can produce one billion pounds of aluminum annually. Our total aluminum production even when present expansion is complete will be one hundred and fifty million pounds short of that, but we need not let this condition prevail. Thirty million dollars, added to expansion already under way, would give us twenty more ingot plants and a total of one and one-half billion pounds of capacity."

HOTEL GUIDE

Leahy's Hotel Guide & Travel Atta, in its 66th edition, with up-to-the-minute information based on the 1940 census, is now off the press and ready for distribution. Published since 1896 by the American Hotel Register Company, Chicago, the Guide is an authoritative source of information for hotel men, sales managers and travel agents. It gives accurately all hotel information desired by the traveling public; number of rooms, plan of operation and rates. For the towns it lists populations, railroads entering and position on the railroad map. It contains Rand McNally two-color auto road maps, the latest air line map and state railway distance maps. This year the Guide comes out in a new typographical dress which facilitates reading. The book is 12" x 16" in size, contains 224 pages and sells for \$5.00.



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PERSONALITIES

in the NEWS

Mrs. Edith C. Gaddis, Purchasing Agent for the New York Steam Corp., subsidiary of the Consolidated Edison Co., was the subject of a feature article in the *New York Times* of April 6th. Mrs. Gaddis was formerly assistant to Purchasing Agent J. N. Moncrieff, and succeeded to the purchasing office on Mr. Moncrieff's death in 1939.

W. C. Smiley, Los Angeles Purchasing Agent for the Emsco Derrick & Equipment Co., has been transferred to the company's Houston branch as Purchasing Agent.

Paul Schaffer has been appointed Purchasing Agent for the Duro Pump Co., Dayton, Ohio, succeeding Paul Brown.



W. H. PRITCHARD

W. H. Pritchard has been named Assistant Purchasing Agent of the Kearne & Trecker Corp., Milwaukee. He has been associated with the company for the past five years, in the cost and sales departments.

J. B. Norman has been named General Purchasing Agent of the reorganized Minnesota and Ontario Paper Co., Minneapolis. Mr. Norman first came with the company in 1923 as Assistant Purchasing Agent. From 1929 to 1931 he was in charge of industrial sales in Minneapolis for the Marshall Wells Co., returning to the M. & O. as General Purchasing Agent in the latter year.

E. B. Nisbet, formerly Purchasing Agent of the Laminated Shim Co., Inc., Glenbrook, Conn., has been appointed Executive Vice President of that organization.

Horace Pond, formerly Purchasing Agent for Arbuckle Brothers, New York City, has been appointed General Purchasing Agent for the 13,000 acre Kingsbury Ordnance Plant at LaPorte, Indiana.

Joseph W. Nicholson, City Purchasing Agent at Milwaukee, recently spoke on "Centralized Purchasing" before the Two Rivers (Wis.) Community Club and at a forum meeting of the Cook County League of Women Voters in Chicago.

Mrs. Greta Randolph has been appointed Purchasing Agent for Butte County, California, succeeding Frank L. Bratton.

George W. Aljian, Purchasing Agent of the California & Hawaiian Sugar Refining Co., and President of the Northern California Association, addressed a meeting of the Manufacturers Committee of the Oakland Chamber of Commerce, March 31st.

Grant Goodale, Assistant State Purchasing Agent for California, in charge of the Los Angeles office, has been elected President of the Los Angeles Speakers' Club for the coming year. Mr. Goodale is a past president of the Los Angeles Association.



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Leverett A. Anderson has resigned as Purchasing Agent for the Louisville (Ky.) Water Co. to become assistant to George E. Price, Jr., Purchasing Agent of the Goodyear Tire & Rubber Co., Akron, Ohio.

L. D. Barnhill has been appointed Purchasing Agent for the Southern Aircraft Corp., Garland, Texas. Mr. Barnhill has been Assistant Purchasing Agent for the Reed Roller Bit Co., Houston, for the past several years.

R. C. Hopkins has resigned as City Purchasing Agent at Kansas City, Mo.

Horace W. Kephart has been appointed Purchaser of Supplies for the City and County of San Francisco, succeeding to the position held by Thomas A. Brooks, whose promotion to become Chief Administrative Officer for the City was announced in this column last month. Mr. Kephart was Chief Assistant Purchaser under Mr. Brooks at the time of his recent advancement. He is a graduate in business and in law, and has been in the public service thirty years. One of his assignments was complete supervision of the purchase of materials and equipment for the Hetch Hetchy water supply system.

F. W. Edwards, formerly Purchasing Agent for the Telling Belle Vernon Co., Cleveland, Ohio, has been elected to the presidency of that company.

Ralph O. Keefer, Purchasing Agent of the Aluminum Company of America, Pittsburgh, was one of the speakers at the 40th Anniversary celebration of the founding of the Lyman C. Smith College of Applied Science at Syracuse University. Mr. Keefer is a graduate of Syracuse in chemical engineering, and is president of the Pittsburgh Chapter of the Syracuse University Alumni Association.

Frank L. Kulow, Purchasing Agent of the Willard Storage Battery Co., Cleveland, recently addressed the students of the University of Toledo on "Purchasing."

1 1 1

SHIFT IN ZINC USE

An analysis of the zinc statistics for 1940, issued last month by the Bureau of Mines, reveals several basic changes in that industry. Especially significant is the fact that the use of intermediate grades in rolling, which amounted to only 2% of the total in 1939, rose sharply to 22%. Use of prime Western and selected grades for rolling, which were 43% of the total in 1939, were down to 21% in 1940. This shift is attributed to congested market conditions at the end of the year rather than to technological changes in the industry.

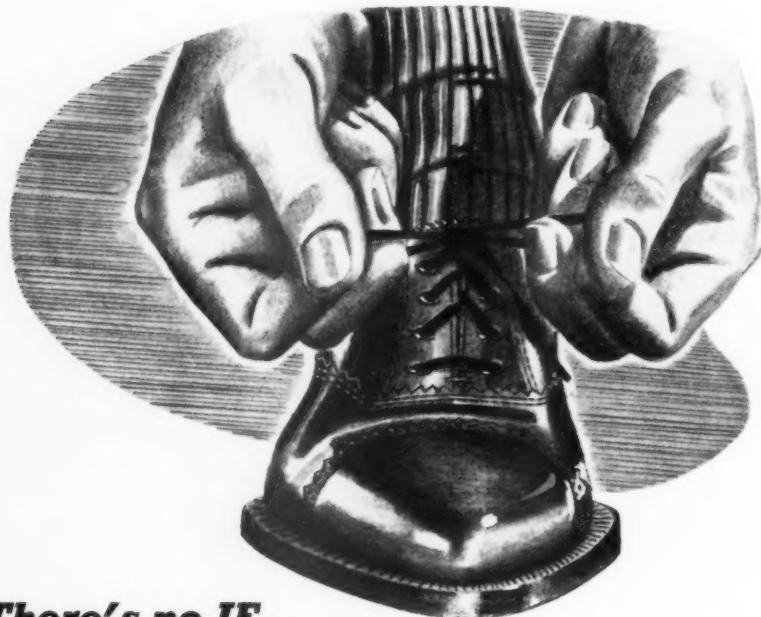
Production of rolled zinc in the United States ran contrary to general industry trends, declining 7% to 57,399 tons. Contributing to this situation were three factors: (1) smaller fruit crops, resulting in a temporary slackening of demand for glass jar covers; (2) a downward adjustment of plant inventories of rolled products; and (3) a strike that closed one plant for a period of three months.

Output of strip and ribbon zinc, which represented 73% of production in 1939, was off 25%, to 59% of the 1940 total. On the other hand, output of boiler plate was up 73%, and output of sheet zinc was up 37%.

1 1 1

IMPORTANCE OF SUBCONTRACTING

The importance of the small manufacturer as a producer and subcontractor in defense work is stressed in a statement made last month by President Charles E. Wilson of the General Electric Co. In discussing the situation with regard to defense contracts placed with that company, Mr. Wilson revealed that more than 250 concerns are helping to manufacture the products for which the General Electric Co. is the primary contractor, and that others are being sought who may be able to handle precision work of the type called for in Army and Navy specifications, thus expediting production to an even greater extent. Citing specific examples of how this work is being spread throughout industry, he stated that finished parts are being supplied to the company's Erie (Penn.) plant by more than 100 subcontractors;



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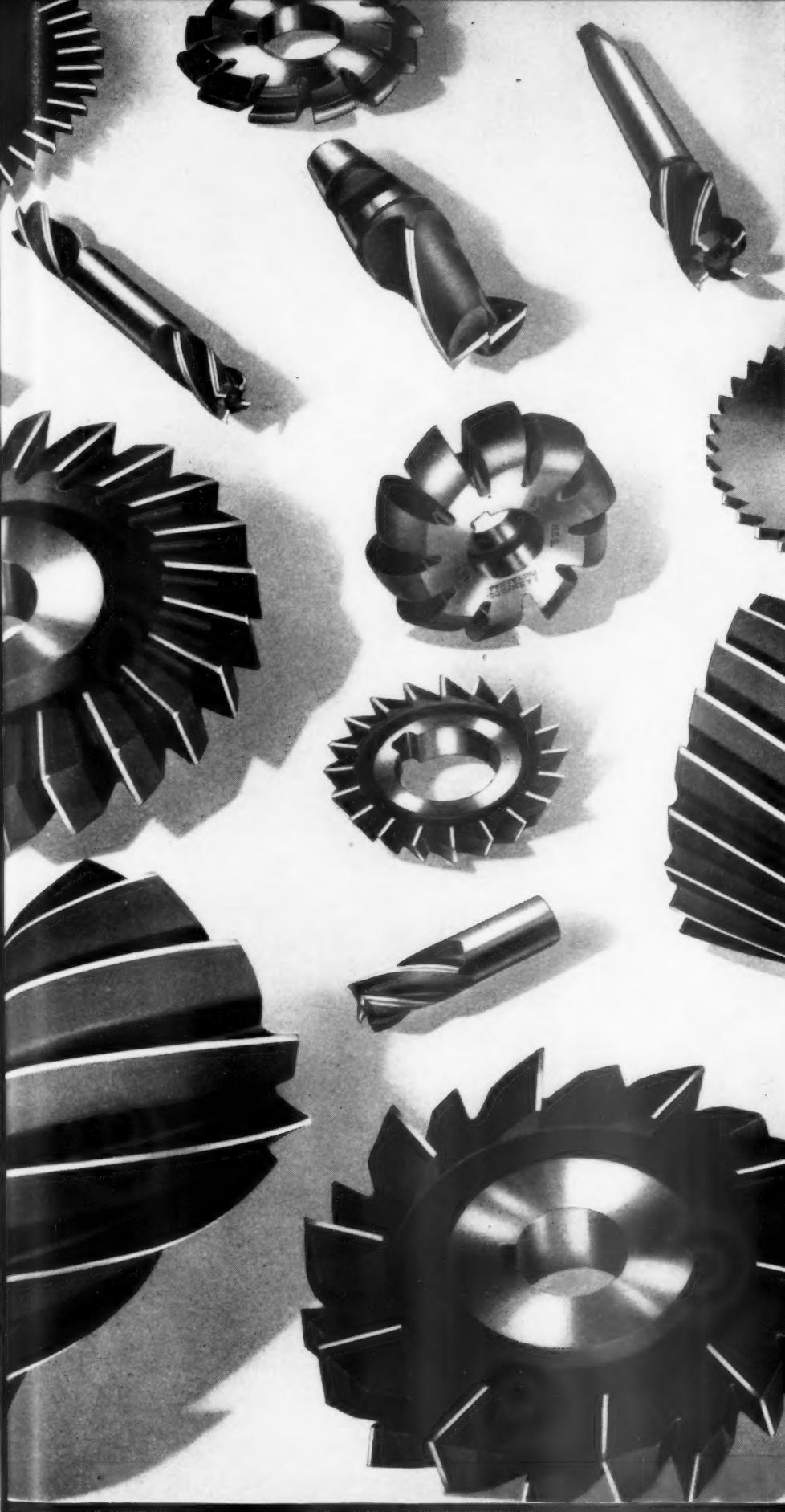


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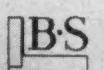
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to the River Works at Lynn, Mass., by at least 65 subcontractors; to the West Lynn plant by at least another 26, etc. The Schenectady plant is the focal point for the production of 95 manufacturers.

"In order to speed our own defense work and advance our schedules," he said, "we are endeavoring to reach more and more manufacturers willing to co-operate on this program. Such plants may have suitable facilities not now fully employed, or may be capable of expanding to handle work of the type demanded by defense specifications. A large part of our personnel and much of our manufacturing facilities are now employed on defense projects. Many new factory

buildings have been erected at our plants, and both longer working hours and two or three shift operation are in effect. Still, the production program has called for, and will continue to call for, additional subcontracting in order to expedite deliveries."

USE OF COTTON BAGS

It is estimated that more than fifty million cotton bags are used annually by industry for mailing, shipping and intra-plant transfer of small parts. Starting as a waste utilization project, using up small pieces left over from the manu-



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1400-106.

facture of the larger salt, sugar, flour and fertilizer bags, it has developed as a major packaging industry.

The bicycle industry was one of the first to make general use of small cloth sacks when they found it possible to save materially on crating costs by placing easily broken protruding parts in bags and tying them to the frames. From that simple beginning, many convenient and efficient plans for shipping and handling parts have been developed. The Chevrolet company, for example, has its suppliers ship replacement parts, one set to a bag, to Detroit, whence they are transshipped to service departments all over the country. Bolts, nuts and bushings are among the parts so handled. Aircraft manufacturers have also adopted this shipping method for servicing assembly plants and repair operations at airports. The practicability of this method for airmail shipments contributes speed to such essential service. The speed required in current defense activities is similarly made possible.

There are three general types of cloth bags used in industry, (1) The "mailing bag" is a sack with drawstrings and an address tag, accepted by the Post Office Department for mailing third and fourth class matter and for air mail. (2) The "parts bag" has only a drawstring, and is used primarily to prevent loss of small parts by tying them to the product or to its shipping crate. (3) The "envelope bag" has an envelope sewed into one of its seams. It is accepted for mailing third or fourth class matter, with first class matter in the attached envelope, subject to postal regulations governing such mailing.

In some applications, savings up to 90% of packing time and 50% of postage have been achieved. The bags are manufactured in a wide variety of standard sizes, printed with company names, instructions, part sizes, or any other desired information.

DEVELOPMENT OF RAYON

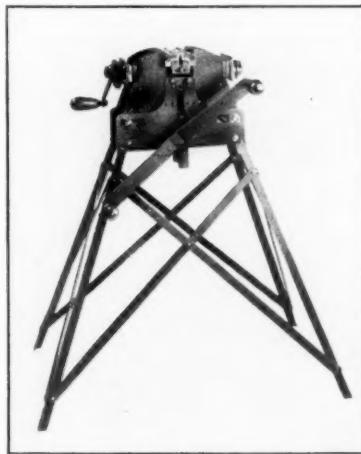
Dr. W. E. Coughlin, research associate of the Celanese Corporation of America, addressed the Metropolitan Retail Store Adjusters' Association in New York City recently, tracing the development of the rayon industry and the changes which this has effected in the textile industry as a whole.

Rayon yarns, when first produced in 1889, were only museum items. At the time of the World War, the regenerated cellulose process came into commercial prominence. Due to the coarseness of the filaments comprising the yarns, fabrics made from them were stiff and very susceptible to slippage, distortion, and pulling at the seams. They also had low tensile strength when wet. Due to these inherent shortcomings, very few fine fabrics were made of the yarn, and production was limited almost exclusively to underwear fabrics and low priced novelties.

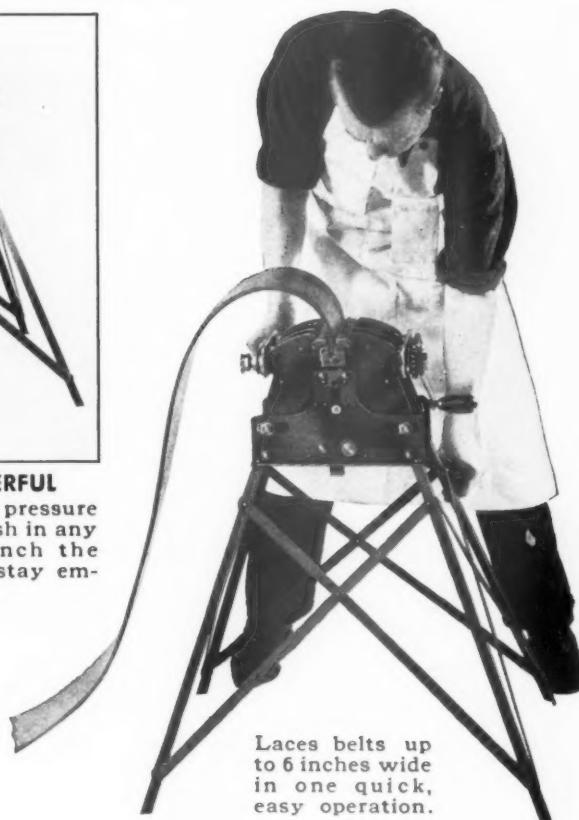
In 1924 and 1925, production was started for the first time in this country on cellulose acetate yarns. These yarns possessed high tensile strength



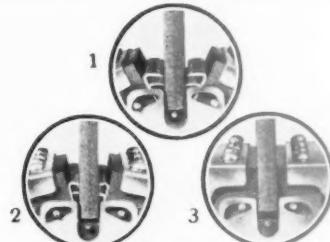
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CLIPPER NO. 9 PORTABLE

**EXTREMELY POWERFUL**

Develops the necessary pressure to embed the hooks flush in any kind of belt and clinch the points to make them stay embedded.

**EASILY CARRIED**

Where a portable lacer is desired, the Clipper No. 9 can easily be taken to the belt.



SCIENTIFIC ACTION of the super-hard jaws embeds the hooks and "sets" them in a closed position flush with surface of belt so that the natural tendency to spring back is eliminated.

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Produces a straight line of well-rounded loops. Permits larger size connecting pin. Distributes pulling strain equally on every hook.

The Greatest Improvement in Portable Belt Lacers in 30 Years.

NOW — for the first time in history, there is a PORTABLE lacer that will make a perfect joint in any belt. With the Clipper No. 9 Portable — you can embed hooks FLUSH with the surface of any belt and CLINCH the points. No other portable belt lacer will do this. It takes pressure-power measured in tons — not pounds — to lace belts properly. Only the Clipper No. 9 provides this power in a portable lacer. ATTRACTIVELY priced! Phone your MILL SUPPLY Jobber for demonstration.

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when wet, and the filament size was fine, so that they came to be used extensively on fine fabrics such as taffetas, satins and moires. Later, the perfection of a regenerated rayon yarn made this material also available for the finer fabrics.

The term rayon does not adequately define fabrics, since they may be composed of one or another of a combination of very dissimilar substances—cellulose, or cellulose acetate. The properties of the two fabrics vary widely.

Rayons have often been referred to as artificial silk, imitation silk, or substitute silk. These names are not complimentary, and as such are not favored by manufacturers, nor should they be used in marketing. Far from being an imitation or substitute for any other type of fiber, the modern rayons have unique properties which are not duplicated by the nat-

ADVERTISING PAGES PREVIOUS

urally occurring fibers, and should be utilized and sold on the basis of their own merits without reference to other types of fabrics.

Factors of sales importance are: permanent dull luster, present in rayon by virtue of the pigmentation process; permanent moire fabrics acquired only with the cellulose acetate yarns; the possibility of producing non-shrinkable fabrics in various constructions other than plain weaves; and the absence of weighting or other adulterants.

AIRCRAFT EXPANSION

Expansion of plant capacity in the aircraft industry, already in progress, is expected to triple existing engine capacity by the middle of 1942. Engines are now being produced at the rate of 2,

800,000 horse power per month, by the United Aircraft Corp., Curtiss-Wright Corp., and Allison Engineering Co. Plant construction now in process in the automobile and aircraft industries should raise this output to 8,000,000 horse power by June of next year. The engines vary in horse power from 500 for trainer planes to 2,000 for bombers and other large planes. Using the higher figure, the new capacity would permit the manufacture of 4,000 military planes per month.



OPA HAS ENORMOUS TASK

It is estimated that as many as 5,000 separate commodity items will come immediately under the attention of the newly created Office of Price Administration and Civilian Supply. Some of these have apparently only a distant connection with defense manufacturers but are nevertheless inseparably linked with some phase of the processing of materials essential to production needs; others are important to civilian morale, or have an important function in defense items even though the bulk of the product normally goes into non-defense uses.

An example is palm oil, an important constituent in the making of tin plate, with only limited possibilities of finding a satisfactory substitute and then only by causing a revision of manufacturing techniques and procedures in more than one field. It therefore becomes a factor of importance in the manufacture of tanks.

Major public attention has of course been focussed on such materials as nickel, steel, copper and aluminum in the defense field, sugar and coffee in the consumer field. There are thousands of other items, however, many of them unfamiliar to the layman, which play an important part somewhere along the processing line of materials which, in finished form, are well known articles of commerce or implements of war.

Commodities now under observation and study include the whole field of crude drugs, glues, fibers, dried egg yolks, cocoa butter, derris root, casein, tanning materials, shellac, zinc oxides, olive oils, paints, spices, burlap, carnauba wax, and vegetable oils.



RAILROAD BUYING EXPANDS

Class I railroads are reported to be planning a greatly expanded program of purchases, involving more than a billion dollars for rolling stock and other materials during 1941 and 1942. Last year expenditures amounted to 272 million dollars for equipment, and 429 million dollars on roadway and structures.

Orders for this year's requirements of rails, steel for bridges, trestles and station facilities, signal equipment, etc., have largely been placed. The additional commitments look to a long range program, particularly to the increased requirements which may be necessary with the continuation of the defense program at a time when materials may have become much more difficult to obtain. Officials emphasize that this is in no sense

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a hurried scramble for materials, and that urgent demands for immediate delivery are no part of the present program. Rather it is a recognition of the fact that the roads must be maintained at the peak of efficiency in the current emergency, and that foresight and planning will be necessary to insure that the materials will be available when needed.

Up to the present, the railroads have not requested priority privileges in their purchases of steel and other materials, but are ready to do so as the occasion may later arise. The important role of transportation in the accelerating defense activity is recognized by all.

The buying program is expected to be greater and more sustained than the buying rush which accompanied the business recovery of 1936-1937. Gross capital expenditures amounted to 509 million dollars in 1937. It is expected that this figure will be exceeded by a considerable margin in both 1941 and 1942.

Deliveries of rails are already reflecting the tight situation in the steel industry. There has been some allocation of rail tonnage by steel makers, a situation which has not confronted the railroads since the World War. The roads' own shops are operating at close to capacity.

DEFENSE EXPENDITURES

Defense appropriations requested by President Roosevelt during the first four months of the year totaled approximately 23 billion dollars, of which 14 billions have actually been appropriated. Nearly 20% of the funds requested were earmarked for construction purposes, and 2,300 million dollars of this has been appropriated.

Further plans for defense construction work include forty additional air fields, thirty-four cantonments, and a number of new ordnance plants, besides 752 million dollars worth of construction to be undertaken under the lend-lease legislation.

DOMESTIC BAUXITE OUTPUT CAN BE INCREASED

According to a survey just completed by the Bureau of Mines, domestic production of bauxite (aluminum ore) could be tripled within two months if the normal import program were disrupted by the war emergency. This would be possible by placing production on a three-shift basis instead of the present one-shift operations, without involving any substantial requirement of new equipment beyond that which is already at the mines or in production. In case of urgent necessity, and with additional equipment, the output could be stepped up 500% within the space of four months. Production is currently running about 50% higher than in 1940, when 438,000 long tons were produced. Imports in 1940 amounted to 629,552 long tons.

Such a program is not immediately contemplated, as it is the policy of the

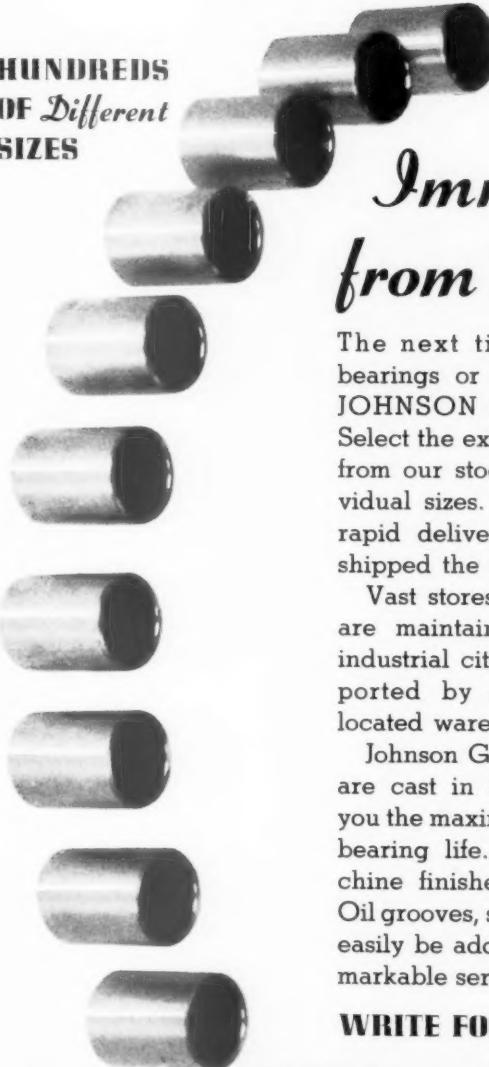
industry to conserve domestic deposits. The report points out that these deposits, occurring chiefly in Arkansas, are relatively limited, and would even now be approaching exhaustion except for the large importations of recent years. If all of the present demands were focused on Arkansas, the supply would last only a few years. There are, however, sufficient supplies available from this source and from South America to meet all aluminum demands of the defense program.

Commenting on this survey, the Minerals and Metals Section of OPM states that about 60% of our supply is now imported from Dutch Guiana. In addition

to domestic production from Arkansas, small amounts are produced in Alabama and Georgia. Policy will be to use imported ores in about the same proportion as in recent years, so long as shipping facilities are available. "It does not mean that domestic production is being held back for the sake of more cheaply available foreign ores," they say. "As a matter of fact, production from domestic sources is being increased to meet about its proportionate share of the largely expanded demand." Some measure of conservation is necessary, however, to guard against an emergency condition in which shipping might be unavailable.

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REPA

Below—Interior and exterior views of plants at Coraopolis, Pa., Rock Falls, Ill. and Port Chester, N. Y.



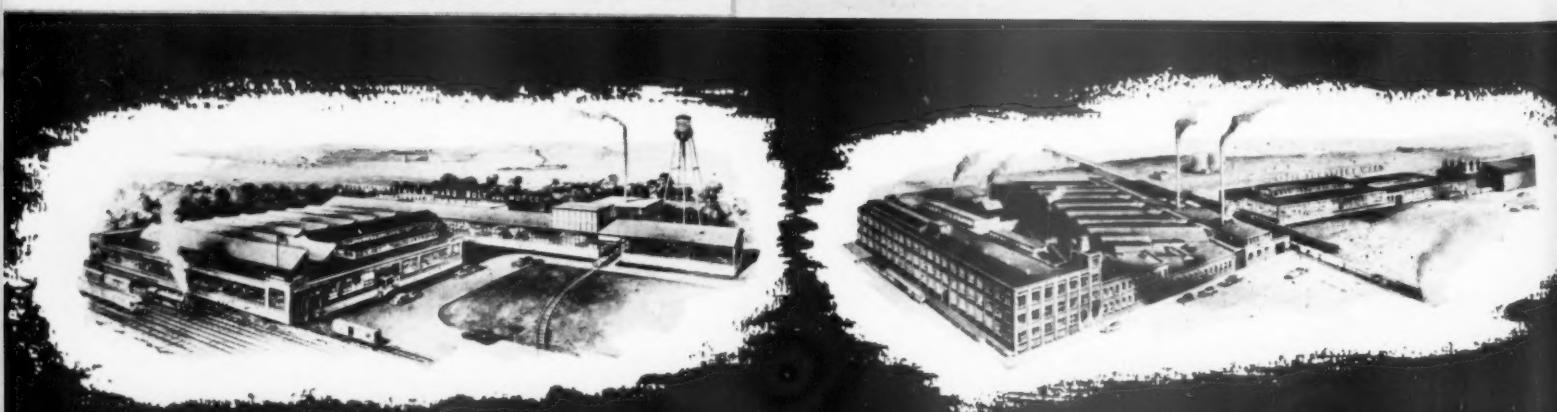
For over 95 years, RB&W has met the demands of industry — during other armament periods and manufacturing peaks where quality and service were essential to national emergency.

Since 1845, RB&W has answered each call through added plant facilities and increased production — yet ever kept in mind those fair policies and co-operative trade relations due to old customers, as well as new, and continued to build good will while meeting increased demands.

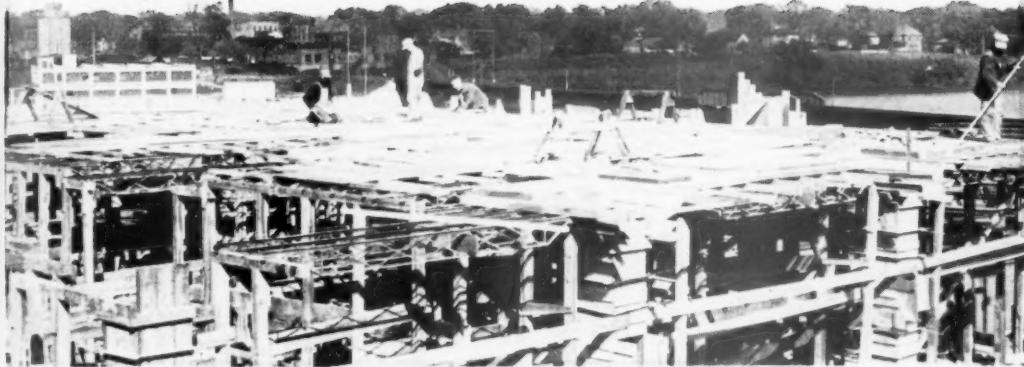
RUSSELL, BURDSALL BOLT

PLANTS AT

PORT CHESTER, N. Y.



OR 9 AND WARD



At left—Two views of plant expansion being completed at present time.

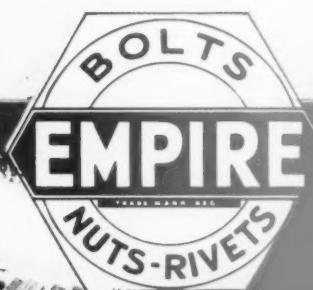
In 1941, RB&W is again prepared. New buildings and additional equipment have been added, and are still being added, to three large and strategically located plants. Immense supplies of raw materials have been acquired, and reserves of large, well assorted stocks of finished products are being maintained.

Thus, as usual, RB&W is in an enviable position to help those needing stable facilities for EMPIRE Bolts, Nuts, Rivets, and other Threaded Industrial Fastenings.

BOLTS: Carriage - Machine - Lag - Plow - Stove - Elevator - Step - Tap - Wheel & Rim - Battery - U-Bolts - Tire - Automotive - Drilled - Faced - Special Heat Treated, etc. - **NUTS:** Cold Punched - Semi-Finished - Hot Pressed - Case Hardened - Slotted - Castle - Machine Screw - Marsden Lock - Low Sulphur - **RIVETS:** Standard - Tinnings' - Coopers' - Culvert - Clevis and Hinge Pins - **SCREWS:** Cap - Machine - Hanger - Sheet Metal - Phillips Recessed Head - **WASHERS:** Plate - Burrs - **MATERIALS:** Steels - Alloys - Non-ferrous Metals - Brass - Bronze - Everdur - Herculoy - and others - **RODS:** Stove - Seat - Ladder - **PLATED PARTS:** Cadmium - Zinc - Chromium - Nickel - Hot Galvanized - Copper - Tin - **SPECIAL UPSET & PUNCHED PRODUCTS.**

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Because they are longer, lighter, thinner and stronger than other wrenches ARMSTRONG Chrome-Vanadium Wrenches are ideal for assembly work for they make work faster, easier and less fatiguing. With their thin heads they make the best machine wrenches for automatic screw machines and wherever space is limited, where lock nuts or set screw heads are narrow.

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"The Tool Holder People"

303 N. Francisco Ave., Chicago, U. S. A.

Eastern Warehouse and Sales:
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FLEXIBLE BELT LACING

STEELGRIP is a stronger lacing for all power and conveyor belts. Clinches smoothly into belts, compresses the ends, prevents fraying. 2-piece hinged rocker pins prevent excessive wear. In boxes or long lengths.

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BELT HOOKS

WIREGRID belt hooks have the patented blue aligning card that holds hooks firmly in position, prevents them from loosening, prevents hook loss from handling, prevents waste of short ends. Every WIREGRID Hook to the last one can be used.

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The Spotlight is on Purchasing

(Continued from page 46)

ing convention is the greatest ever known, despite the fact that it has never been more difficult for the purchasing man to get away from his day-to-day business to meet with his fellow buyers.

There's a Difference

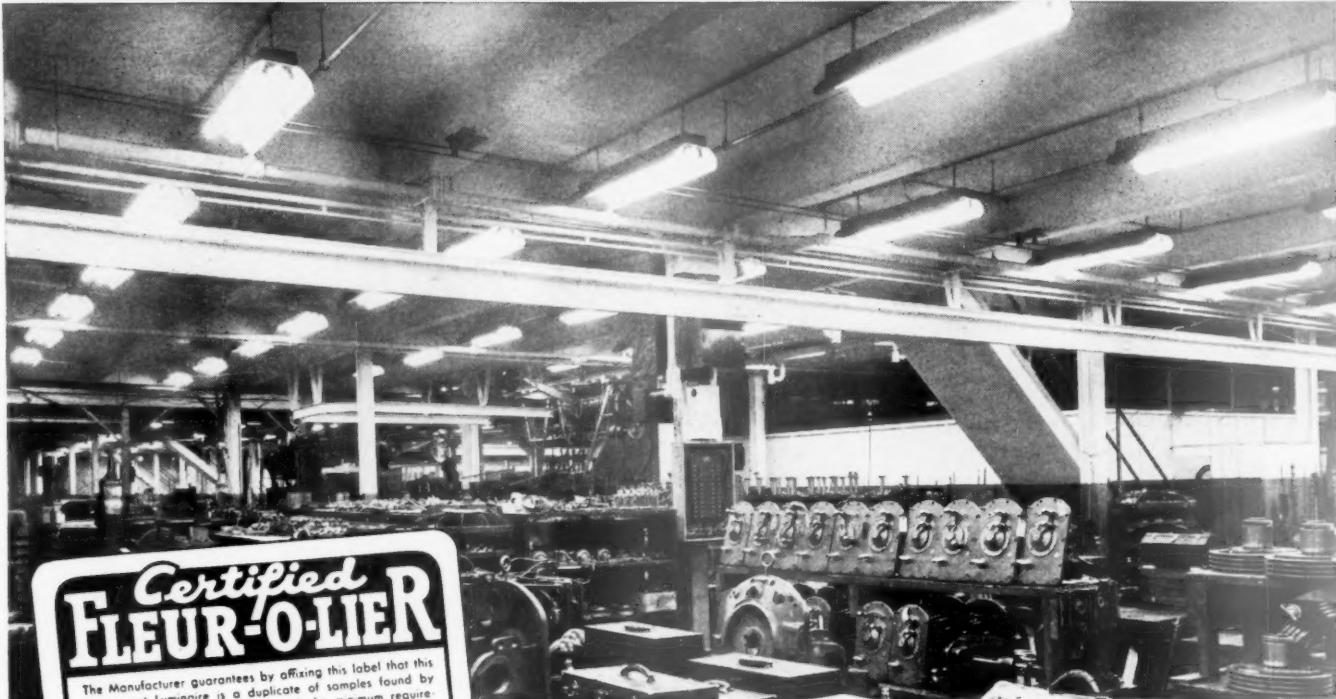
But the picture today differs in one vital respect from that of a quarter-century ago. Buyers of 1941 are fortified with twenty-five years of associated effort and progress. The principles and the mechanics of their function have been defined and refined. Their program has been wisely devoted primarily to education. Personnel policies and training have provided industry with capable purchasing staffs, meeting the more exacting requirements of the day. The scope of their contacts, once limited by the four walls of an office, now extends to all the departments of their own company, to intimate knowledge of suppliers' plants, to purchasing men in all fields, and into the realms of economics, law, research and technical endeavors, as well as to the markets and materials which are their immediate concern. They have the precedent and experience of the former emergency to guide them. Most important, they have the merited confidence of management and the executive authority that goes with it.

This can again be illustrated by the governmental organization for national defense. In that organization, men of recognized experience and skill in purchasing for industry have been drafted to fill the important buying posts, and they are liberally represented on the advisory councils in other branches. That sort of aid was not available in 1915.

To purchasing men, this is more than a gratifying incident, another circumstance that happens to cast them once more in a leading role. It is the convincing evidence that sound purchasing has a permanent and vital place in industrial management, and that the professional standards which they have been developing for a happier use will prove themselves in emergency, for the national interest, and in the trying days ahead. In the satisfaction of finding themselves equipped to meet this crisis, they recognize the increasing responsibilities inherent in their function; 1941 will provide the second great impetus to purchasing development, deeper and more far reaching than that of 1915.

To management and marketing executives, even in this sellers' market, it is indisputable evidence that business begins with buying, and that centralized purchasing organization and authority is as essential as specialized attention to any other business activity. To the extent that they realize this, within their own companies and in those to whom they sell, and pattern merchandising policies upon this principle, industry will reap the full benefit of these years of development in a basic management function.

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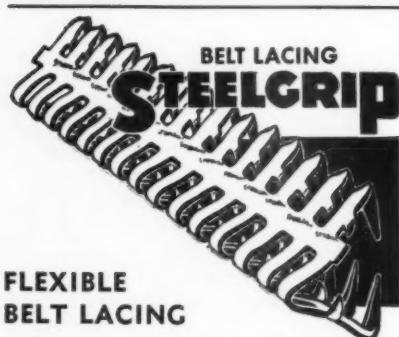


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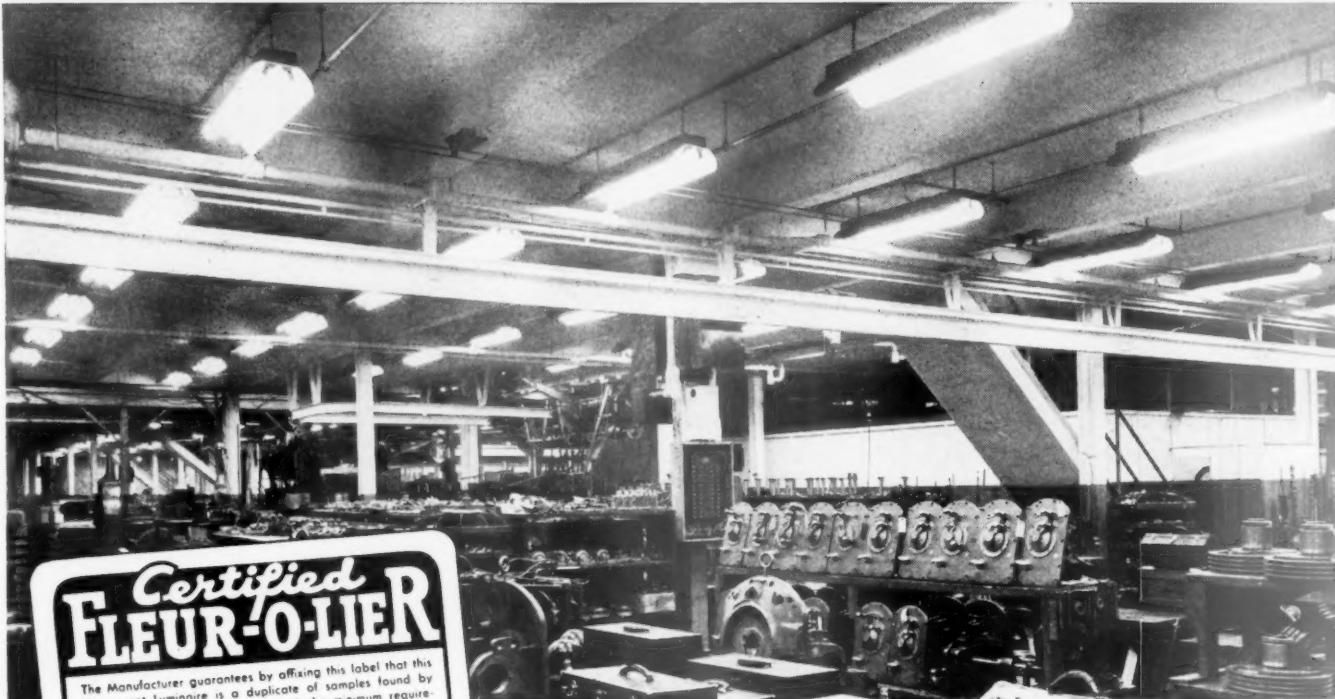
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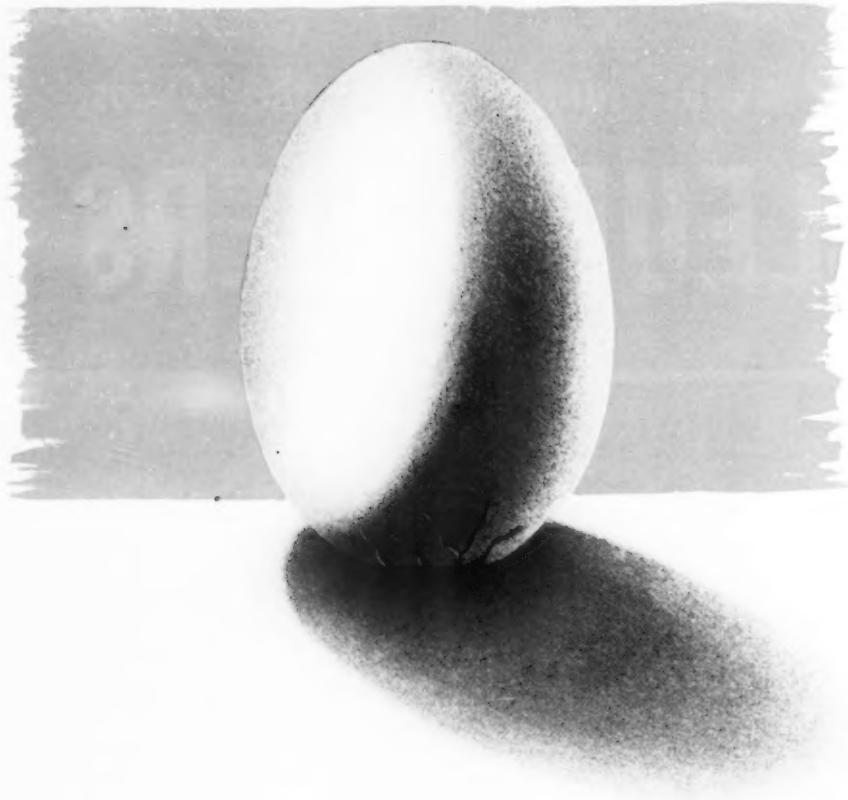
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STAINLESS WELDING ELBOWS

These 11 gauge wall 90° elbows are available from stock in Stainless Type Nos. 308, 316, and 347 in 2", 2½", 3", 4", 5", and 6" I. D. sizes. Write for list prices and description of complete line.

PITTSBURGH PIPING & EQUIPMENT CO. 10 FORTY-THIRD ST. PITTSBURGH, PA.

Without Benefit of Priority

(Continued from page 51)

of its lists of prices to dealers—gold “pros” and stores, and to schools, are issued with this line: “Subject to change without notice.” Mr. Bowman says:

“We hope there will be no inflation, but price increases due to increases in costs cannot be avoided. When the trade requires a ten-dollar quality item on which costs have gone up to make it necessary to put a twelve dollar price on it, all that can be done is to sell the item of that quality at the higher price and then possibly add an item of lower quality and cost at the lower price. Even in sports the user ought to pay the right prices for what he gets.”

The Long-Range View

Looking ahead toward possible shortages which may develop out of world conditions in the present war, Mr. Bowman pointed to a favorable factor not present during the last war. “There were no substitutes for basic materials in 1917,” said Mr. Bowman. “Now there are many. They have resulted from the development work by the Du Pont people, United States Rubber, and others. There are many substitutes for leather from hides; for example, composition soles such as have been used on the shoes for the CCC boys. For canvas Du Pont has an inexpensive imitation. As to rubber we can still get all we need. If Japan gets too aggressive, the rubber supply might run short, and we’d have to use synthetic rubber. But that would not be impossible. Of course if substitutes were used, their costs instead of the costs of the usual materials would be the basis of the price structure.”

With iron and steel items on the Army-Navy list of “critical materials,” Mr. Bowman was asked what he would do about the \$100,000 worth of forgings for the heads of midirons, approaching irons and putters, and the \$500,000 worth of steel tubing for golf club shafts required for his company’s annual production. He had an answer. It was this: “We would go to the priorities people at the OPM (Office of Production Management) and say to them something like this: ‘Our total needs for iron and steel are only a drop in the bucket. A year’s supply for us would be less than a day’s supply in a munitions plant. Let us have what we need and we won’t have to lay off 600 or more employees, and thus weaken the power of the consuming public to pay the taxes for the expenses of national defense.’ We think they would agree to that.”

This sounds reasonable. Moreover, as to aluminum, the validity of the argument has already been recognized by E. R. Stettinius, Jr., Director of Priorities, in the Office of Production Management. In the concluding part of his supplementary order of March 21 giving a preference rating schedule on aluminum, Director Stettinius expressed it thus: “The Priorities Division will give especial consideration to any evidence indi-

"You got us out of a bad jam" *

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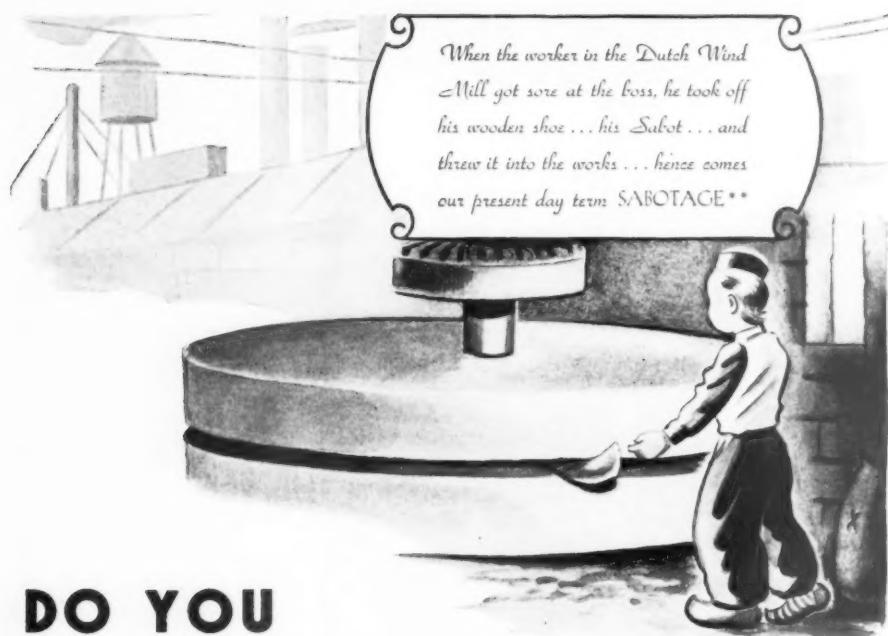
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111 NEW PLANT FACILITIES SET HIGH RECORD

Lowell J. Chawner, Chief Industrial Economist, U. S. Department of Commerce, reports that the production of new manufacturing facilities in this country is at the highest rate in history, under the impetus of the National Defense program. Based on the record of the first quarter, it is estimated that the production of plant and equipment during 1941 may reach a total of three and a half billion dollars. This would represent an increase of 52.2% over the previous year. It is 40% above 1918, when the nation was at the crest of its productive effort for the World War, and 9.4% above 1920, the previous peak, when prices were very high and actual production facilities per dollar of capital expenditure were correspondingly lower.

Direct financing of plant expansion by the Federal Government is much larger in the present instance than in the earlier periods. During the fiscal years of 1917, 1918, and 1919—the World War period, Government financing totalled approximately 500 million dollars. In the period from June, 1940, through February, 1941, Government financing for this purpose has amounted to about 1,900 million dollars. This includes funds provided in specific allocations to the military agencies and the Maritime Commission, plus contracts entered into by the Reconstruction Finance Corporation and the Defense Plant Corporation.

About one billion dollars of these contracted expenditures are for facilities financed entirely by the Government, which will presumably be owned permanently by the Government. The remainder represents facilities for which the various Federal agencies assume the obligation to pay the entire cost because of their immediate need for defense production purposes, but which are considered to have possible commercial value later in fabricating goods for civilian use.

In addition, a large number of plants are being built and financed privately



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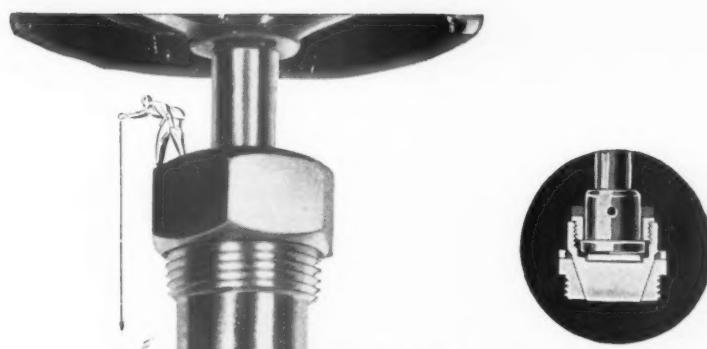


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for national defense purposes. Certificates of Necessity have been issued by the Office of Production Management for the construction of plants to a value of 393 million dollars, up to March 1, 1941, and the British Government, since June 1, 1940, has undertaken to finance production facilities in this country at a cost of 171 million dollars.

According to Mr. Chawner, the present urgent construction program for defense production developed just at a time when many manufacturing concerns were making plans for substantial plant expansion, improvement, and relocation to meet the requirements of their normal business. In recent months, however, plant construction for other than defense purposes has been deferred, and he emphasizes the probability that after the needs of the present emergency have been met, there will be a tendency to readjust fundamental industrial facilities to peacetime requirements, similar to the move which took place in the years immediately following the World War.

U. S. IS CHIEF FACTOR IN ARGENTINE TRADE

Cut off by the British naval blockade from foreign markets that normally take 40% of her exports and supply 33% of her imports, Argentine trade for the first two months of 1941 was sharply off from the levels of the previous year. Exports were 46% below the corresponding figures for 1940. By means of rigid restrictions on imports, limited to only the most essential items, importations were cut by 52.5%. Consequently the balance of trade still showed an excess of exports over imports amounting to 49 million pesos. The figure last year was 55 million pesos.

Analysis of the record shows that trade with the United States accounted entirely for this export balance, since our purchases of nearly 74 million pesos of Argentine goods in January and February, representing 38.7% of total exports, exceeded the value of goods supplied from this country by 49.09 million pesos. The United States appears now to be clearly established as the principal market for Argentine goods, as well as being that country's chief source of supply. Great Britain holds second place in both categories. The relative position of both powers, in the early months of this year, was:

Exports: to United States, 38.7%; to Great Britain, 29.8%.

Imports: from United States, 23.6%; from Great Britain, 18.7%.

Trade with the United States has been increasing in importance over recent years, as indicated by the comparative figures:

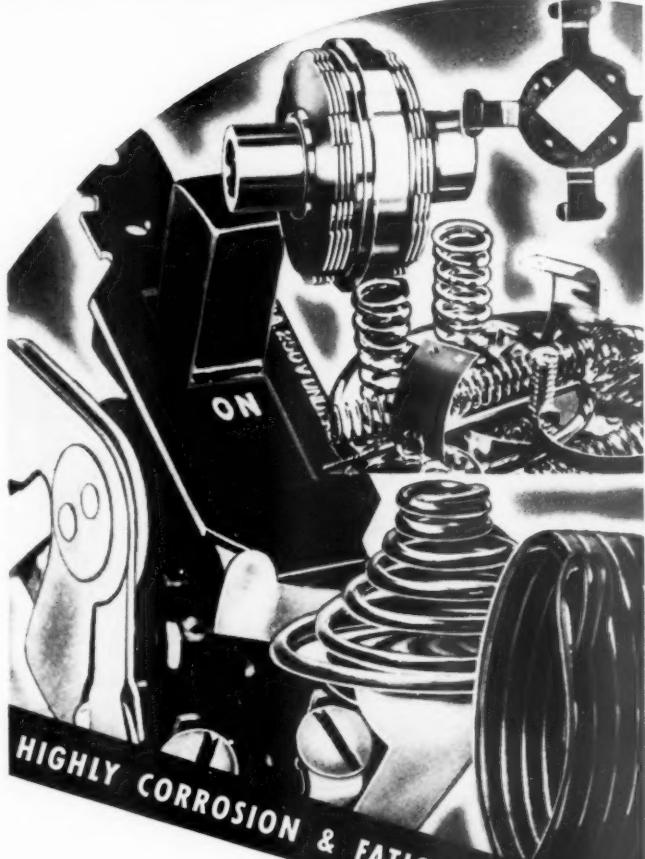
Exports to U. S.: 1939, 12%; 1940, 17.5%; Jan.-Feb. 1941, 38.7%.

Imports from U. S.: 1939, 17.2%; 1940, 29.1%; Jan.-Feb. 1941, 23.6%.

The decline shown in the last mentioned figure is due to the restriction on imports of non-essentials, such as radios, automobiles, electric refrigerators, etc., which have largely come from this coun-

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try. Importers of such products in Argentine are actively engaged in promoting the sale of Argentine products in this country by means of an export corporation, as a means of building up dollar exchange for financing further purchases.

Argentina is still a heavy debtor nation, and gold shipments in excess of 175 million pesos above the import balance had to be made last year to balance the commercial accounts, due to the drain of servicing the foreign debt and foreign private investments. The gold reserves of the central bank dropped in 1940 for the first time, because of these factors.

1 1 1

SCRAP REQUIREMENTS OF 1941

The steel industry estimates its requirements of scrap for steelmaking in 1941 at about 29 million tons. Scrap dealers estimate that only about 24 million tons can be collected at the proposed official price ceiling of \$20 per ton, Pittsburgh base. The additional 5 million tons exist in the country, but they are in out-of-the-way places, and additional costs of collection and freight to deliver it to the steel mills would carry the price above the permissible level. Government officials are now working with the Institute of Scrap Iron and Steel on a plan for handling the situation.

Policy is against raising the price ceiling to provide for this extra 13% of total requirements. Such a procedure, following the "bulk line" method of World War I which was based on the total volume requirements, would of course result in the fixing of prices on the basis of costs to the marginal, high-cost producers, expanding the profit range for the low-cost producers and setting a higher level throughout the industry. In place of that system, a solution is sought which will hold costs of the readily available 87% of scrap needs to a lower level represented by the \$20 ceiling, and to distribute the additional cost of marginal supplies equitably over the industry as a whole.

One proposal, which is not viewed with any great enthusiasm, but which may be adopted if no better plan is suggested, contemplates the formation of a common pool fund by contributions from the users of scrap in proportion to their consumption of scrap in 1940, at a predetermined amount per ton. The pool could be administered either by the government, or by the industry with governmental sanction. It would provide the extra payments, above the stated maximum price, necessary for the procurement of the additional five million tons of scrap, and would presumably cease to function when that volume had been satisfied.

It is hoped, however, that some less sweeping expedient will be found before the requirement becomes acute.

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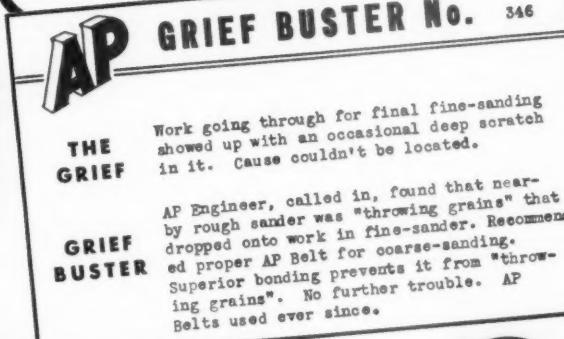
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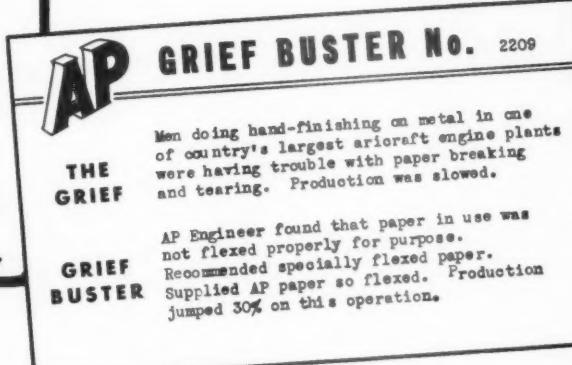
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FOR HELP!**



**WE WERE
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MONEY
AND
DIDN'T
KNOW IT!**



**A LITTLE
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BROUGHT
US BIG
RESULTS!**



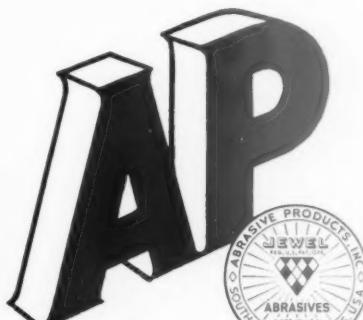
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**THREE-POINT PROGRAM TO
PREVENT INFLATION**

Price Administrator Leon Henderson, in a radio address from Washington on April 24th, outlined the Government's three-point anti-inflation program, involving price control, expansion of the supply of goods, and curtailment of consumer buying power "to narrow the gap between the demand for goods and the supply of goods which inevitably will develop as the defense program progresses." The plan is designed to curb inflationary trends arising out of the serious dislocations to the normal economy caused by the armament program. The demand for consumer goods is to be held in balance with available supply through high taxes and sales of bonds to the public.

It is Mr. Henderson's belief that inflation is not inevitable if the proper controls are established and exercised now, but that drastic measures are necessary. The effect of such measures has already been noted in the experience of recent months. He cited figures to show that although the United States has had the greatest productive increase in its history during the past year, wholesale prices advanced only 5% while production was rising 27%, and the cost-of-living index advanced only about 2%. When the supply of goods fails to meet all demands, he stated, "we will move in as we have in several cases already, and impose mandatory price ceilings. We have the power, but if more is needed, we are prepared to ask Congress for additional legislation.

"But let me impress this fact on you most earnestly: We want to avoid 'going to law' to achieve our goal of relatively stable prices. I have enough confidence in the patriotism of American business men, of farmers, and of labor, to believe they will cooperate in this effort, once they understand clearly what we are trying to do and why it is important to the whole country."

He emphasized throughout his address that it was important for the Administrator of Prices to remember that "one man's price is another man's cost," a factor which can lead to cumulative advances during the processes of distribution and production.

He pointed out that the problem of maintaining price stability is becoming more difficult even now.

"Demands for raw material, supplies, labor, shipping, power, railroad transportation—all will be intensified, and in some cases the materials and facilities available for use by plants manufacturing civilian goods will have to be curtailed sharply. The Government has no intention of following the attitude toward prices prevalent during World War I, which was to let buyers bid for goods and let them run up prices in the hope of thus getting greater output. The cost of living soared, the Government's cost of armaments rose enormously, and business men were harassed by constantly changing prices.

"Processes of production are impeded by constantly rising prices; labor loses

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Styles: For all makes of electric, air and spiral drivers.

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in high prices what it gains in wage advances; and taxpayers are unnecessarily burdened by a lift in the cost of armaments. Furthermore, inflation of the type which occurred in the World War inevitably brings in its wake the sort of collapse which came in 1921. The basic approach to this problem today is to increase the supply of goods to meet expanding needs. When that approach fails, because of time required to construct new plants, to train workmen, or to build ships, then other steps must be taken.

The Office of Price Administration and Civilian Supply has so far concentrated its attention in the industrial raw material field, largely on scrap materials, which are the first to feel the effect of increased demand on price. Wage increases should not be passed along in the form of higher prices unless it is clearly apparent that they cannot be absorbed out of current profits of the companies involved.

"Payments for work done in producing armaments will be spent in large measure for consumer goods. But if there are not enough of certain consumer goods to go around, the tendency will be to bid prices up. We can help protect consumers on these items by price controls and by diverting consumer purchasing power to the great surpluses of this country—food, amusement, travel, clothes, and many other pools of goods for which many people are still hungry.

"The three-point program of price fixing, increasing goods supply, and curtailment of consumer buying power will facilitate our efforts to maintain stable prices, particularly of goods entering into the cost of living. That three-fold program can succeed only if we have complete cooperation. If we do get that cooperation, and I am sure we will, this country will be able to come through the emergency without the disastrous inflation which occurred here during the World War, and which is occurring now in many European countries. It is a goal worth striving for, and one which I am confident we will attain."

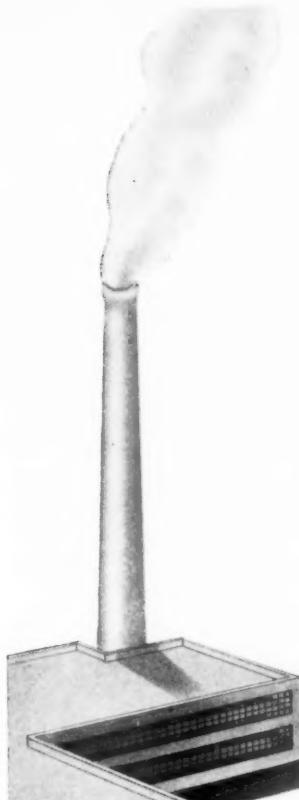
In reviewing the entire purposes of the defense program, Mr. Henderson said that talk of "aid short of war" meant to him more than just "selling, lending, giving, or leasing whatever surpluses may be lying around. To my mind it means that this country, by unchaining its ability to produce, by encouraging its organizing genius, by unfettering the spirit of labor, by unshackling its farmers, and by using its vast financial strength, shall bring into existence, for the use of democracy here and abroad, an overwhelming superiority of everything—ships, guns, food, planes, ammunition, clothing—and everything which people fighting to be free and stay free will want.

"Next year, what you and I have for family consumption may be larger or smaller, depending on how well we plan. One thing is certain—your life as a consumer will be different. If inflation is permitted, then we will be compelled to take all defense effort from our stock-lines of income. Moreover, we might

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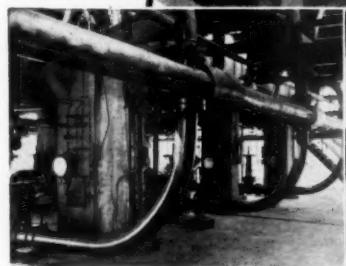
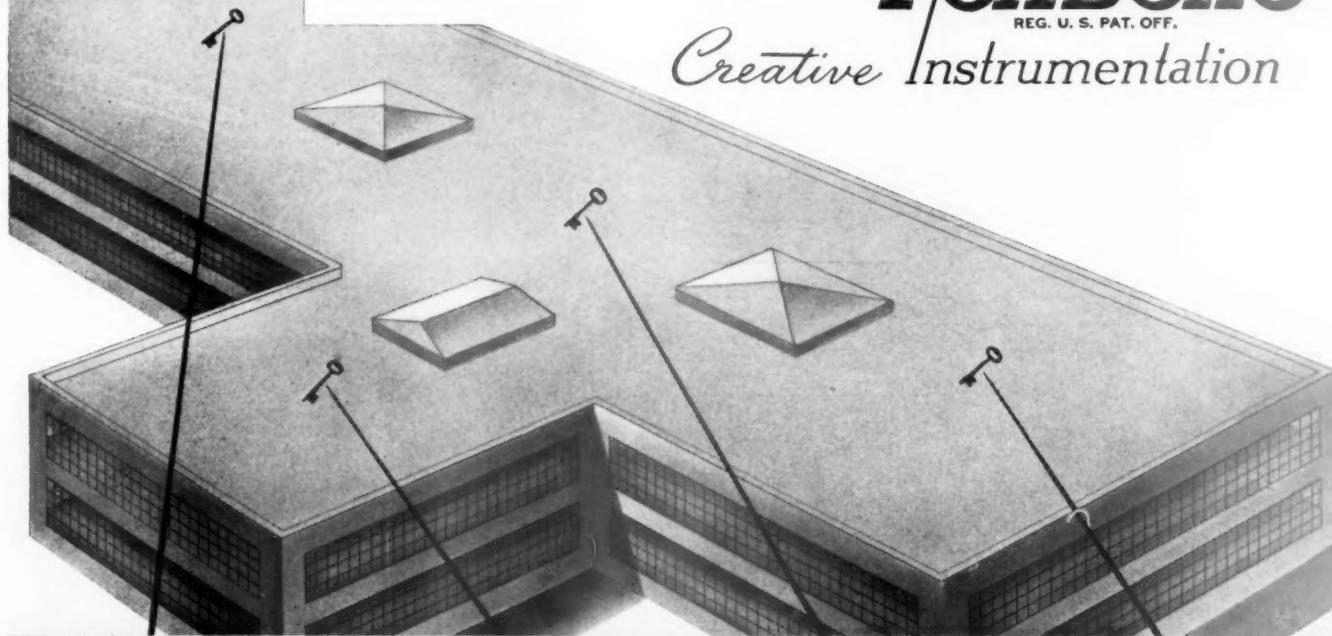
The illustration shows a few typical "key points" in chemical process plants

where such improvements have been accomplished. Similar examples could be given for nearly any other industry.

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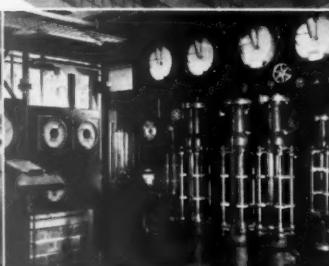
Creative Instrumentation



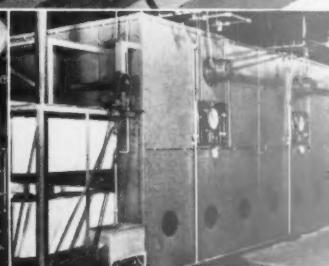
PUMP ROOMS require minimum supervision when gas or liquid flow is under accurate control of Foxboro Stabilog Flow Controllers.



DIGESTER operation of exceptional uniformity becomes a simple routine, through Foxboro Automatic Control of flow and pressure.

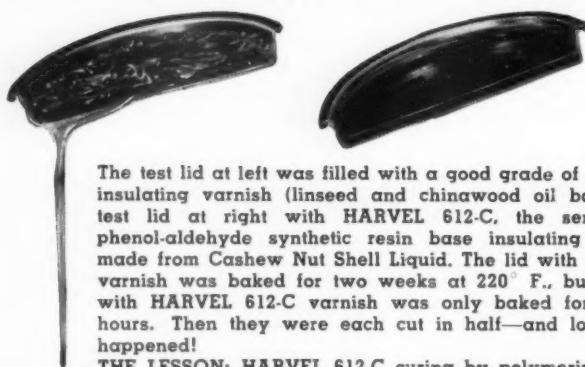


STILLS for solvents or other chemicals are precision-operated from control room by Foxboro Temperature, Flow and Potentiometer Controllers.



DRYERS produce continuous, uniform drying, automatically, when equipped like these with Foxboro Relative Humidity Controllers.

Two Lids that Teach a Lesson



The test lid at left was filled with a good grade of ordinary insulating varnish (linseed and chinawood oil base), the test lid at right with HARVEL 612-C, the sensational phenol-aldehyde synthetic resin base insulating varnish made from Casewell Nut Shell Liquid. The lid with ordinary varnish was baked for two weeks at 220° F., but the lid with HARVEL 612-C varnish was only baked for sixteen hours. Then they were each cut in half—and look what happened!

THE LESSON: HARVEL 612-C curing by polymerization, is not dependent upon "oxidation" but sets completely dry throughout irrespective of thickness of application. Ordinary varnishes, which dry mainly by "oxidation," set on the surface but usually leave the interior wet or tacky. Thus, HARVEL 612-C gives better protection and can be applied far more rapidly in multiple coats by allowing merely a brief bake between dips and a single final bake.

HARVEL 612-C cannot soften, is not affected by acids, not disintegrated by mild or concentrated alkali solutions, is highly resistant to transformer and lubricating oil, and maintains its insulating qualities at elevated temperatures. It may be applied in the usual way and has excellent dip-tank stability.

A new folder on HARVEL 612-C is yours for the asking. Write Dept. 76.

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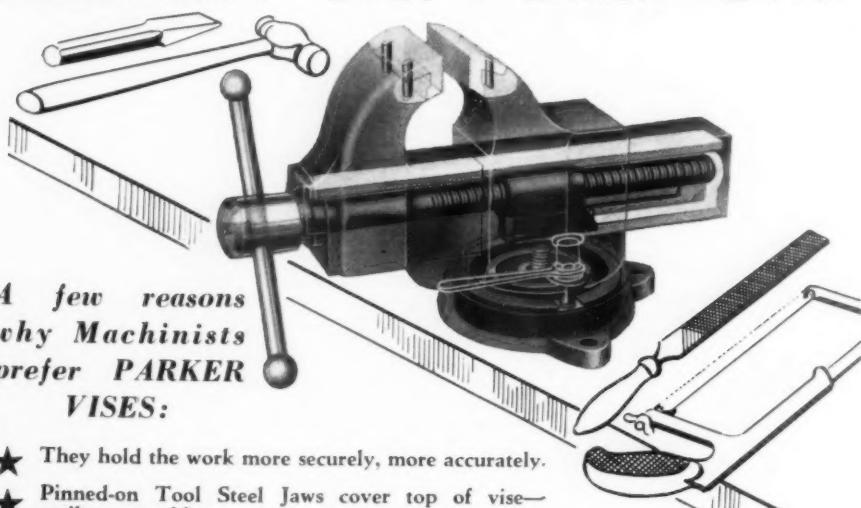


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lose some part of our new gains. Failure of the country to increase production in the last war resulted from the demoralizing effect of spiralling prices.

"It must not happen again. Hitler could win no victory today that would be more destructive to democracy than uncontrolled prices in this country."



CONSUMER GOODS SUPPLY AND PRICES STUDIED

Secretary of Commerce Jesse H. Jones called a conference at Washington, May 2nd, for the discussion of problems relating to distribution of civilian supplies of food, clothing and textiles, in view of changed conditions caused by the defense program. Invitations were sent to 350 business leaders and 100 national trade associations. Cooperating in the conference are the Office of Production Management, Office of Price Administration and Civilian Supply, the Departments of Agriculture and Labor, and the Bureau of the Census. Data were presented on production, supply and price trends, in seventeen commodity groups.

Commodities which came under review were: meats, dry groceries, fresh fruits and vegetables, dairy products, cotton piece goods and yarns, worsted and woolen piece goods, silk and rayon piece goods, cotton sheets and blankets, wool and part-wool blankets, men's and boys' clothing, shirts and underwear, work clothing, men's and boys' shoes, women's and girls' clothing, dresses, hosiery, and women's and girls' shoes.



O. P. M. APPOINTMENTS ARE ANNOUNCED

The Office of Production Management has announced the following appointments to the field staff of the Defense Contract Service:

Thomas S. McEwan, district manager in Chicago. Mr. McEwan has been associated with Chicago and New York firms of consulting management engineers.

Frank J. McDevitt, district manager in St. Louis. Mr. McDevitt was formerly Director of Streets and Sewers for the City of St. Louis.

Robert R. West, district manager at Richmond. Mr. West was for many years President of the Riverside and Dan River Cotton Mills at Danville, Virginia. He is at present on leave from the University of Virginia, where he is director of the Bureau of Industrial Research.

M. F. McComber, area manager at Pittsburgh. Mr. McComber has a wide industrial experience, having been associated at various times with the Jones & Laughlin Steel Corp., the United Alloy Steel Corp., and the Timken Roller Bearing Company.

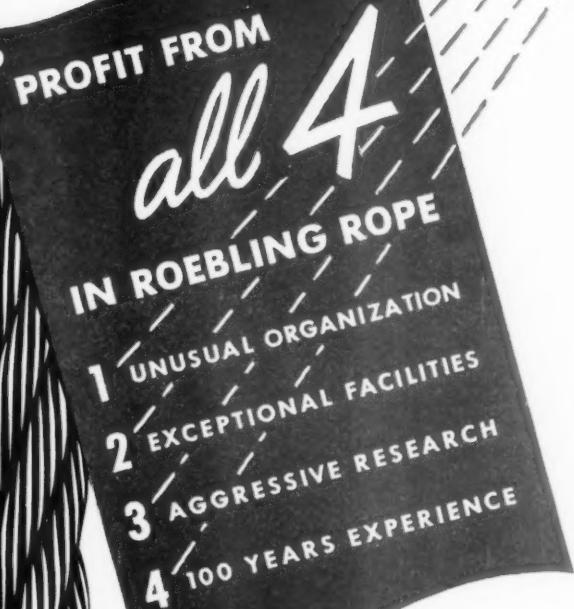
All of these appointments are effective as of April 28th.

Sidney Hillman, Associate Director General of O. P. M., also announces the appointment of Matthew J. Burns of Albany, N. Y., as a consultant in the labor division.



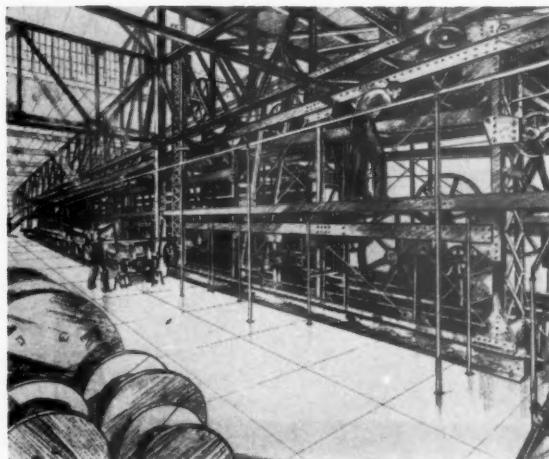
TO CUT ROPE COST...

KEEP YOUR EYE ON THE ROEBLING "4"



The Roebling "4" combine to give you the one thing above all that counts in wire rope service. And that is—utmost *overall* rope safety and minimum *general average* rope operating cost—economy based on your ropes *as a whole*.

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WIRE ROPE HIDES NO SECRETS HERE!

This wire rope fatigue machine is an outstanding example of Roebling's aggressive research and exceptional facilities. It is the largest and most highly developed wire rope fatigue machine in existence, designed by Roebling for use in studying rope characteristics. With this machine is carried on a never-ending search into the wearing and fatigue qualities of wire rope under various bending and tension conditions.

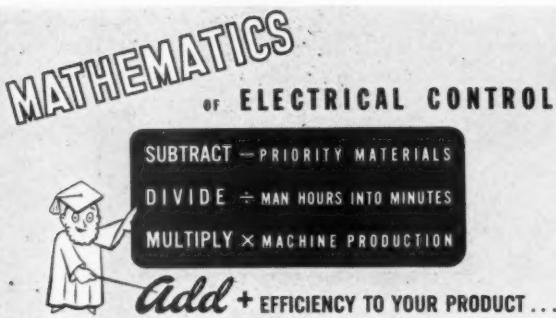


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★ You, and your engineers are doing some serious thinking. With machines and skilled workers practically unavailable, and essential materials being rationed, you'll have to make some changes. Want to eliminate priority materials, cut machine time, and make the most of available man-hours? Consider

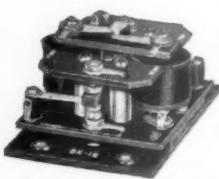
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If you use Guardian Electric controls, and more people do every day . . . we can eliminate large amounts of expensive hard-to-get materials . . . reduce machine and assembly time . . . overcome dissipated action and friction drag of outmoded mechanical controls with better performance assured in the bargain.

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Series BK-16 Relay. Built to minimum tolerances and the most exacting requirements in production quantities for the U. S. Signal Corps.

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HOSE • BELTING • PACKING
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Purchasing Policies

(Continued from page 55)

traded in selfishly and at prices considerably above quoted market. It is regrettable that the business community, actuated in general by high principles, must always find in its midst chiselers who exploit even a national emergency to their own advantage.

As I see business men today, their attitudes are vastly improved over those of 25 years ago. At the end of this war I doubt if anyone can honestly accuse the business community in general of endeavoring to make an unfair profit out of a war emergency. There is a desire to serve and be helpful on the part of business today, which shows the true calibre of its leadership. I have had only a few experiences in the conduct of our buying program which would lead one to believe that business men are using this emergency to line their pockets with gold.

Business Wants Stable Prices

Beyond the immediate and very important question of dealing with the supply problem, O.P.M. has concerned itself with the price level. History has taught us that war periods have always been characterized by rapidly rising price levels and that wars have always been followed within the space of two or three years by primary post-war depressions which are caused principally by downward adjustment of the price level. It is not unreasonable to suppose, therefore, that our problem of readjustment after the war will be much simpler if prices are not inflated far beyond normal levels.

Here again we are faced with the choice between rigid controls and voluntary action. It would be possible to freeze price levels by law, but there are many disadvantages to this method. O.P.M.'s operations are commendable in that they have sought to keep prices in line through the cooperation of the parties involved. Examples of successful operation of this theory of price control by voluntary action were presented by the lumber and steel scrap industry. We are heartily in agreement with the need for price control, and have directed our purchasing so far as possible in a manner designed not to encourage price increase. This is, of course, to our interest as well as to that of the national defense program. We are also opposed to price increases in our product lines, unless these become necessary by virtue of increased labor and materials costs.

Looking Beyond the War

Westinghouse has bent its best efforts toward support of the armament program; we have not relaxed in our work to keep our non-defense plants operating. Some of our most serious supply problems have arisen in connection with these plants, but we believe it highly important to the future of our com-

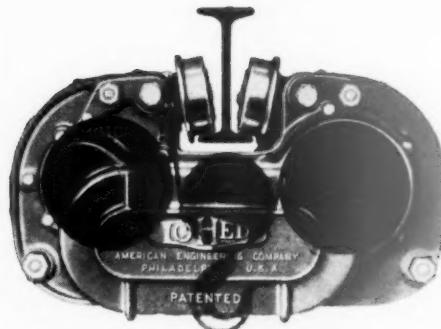


AMERICAN ENGINEERING COMPANY

**The Lo-Hed Hoist Is Applicable To Any Monorail System
There's A Balanced Lo-Hed Electric Hoist For Every Purpose**

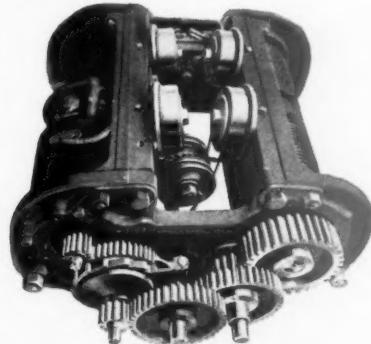
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Look in your Classified Telephone Directory under "A-E-CO LO-HED HOISTS" for your nearest representative.

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You Need BALANCE in a HOIST

LO-HED, the Balanced Hoist. You can instantly single out a Lo-Hed hoist because of its characteristically different appearance. Ordinarily, appearance isn't important in a hoist but it just so happens that a Lo-Hed hoist gets its appearance from a basically different construction. Motor and drum are arranged on opposite sides of the beam. The hook is directly in the center and can be pulled up close to the beam—an extra advantage where headroom is low. Because motor and drum shafts are separate and parallel the motor can be geared to the drum through efficient spur gears. Buy the hoist that's balanced if you want low operating and maintenance costs. Write for Lo-Hed catalog today.



LOOK AT THE BALANCED LO-HED!

It Costs Less To Operate—All gears are efficient stub-tooth spur gears running in a sealed oil bath . . . gear shafts and trolley wheels are equipped with heavy-duty ball or roller bearings.

It Costs Less To Maintain—Sturdy construction . . . seldom, if ever, requires removal from rail . . . covers off controller, motor, drum and gearing are easily removed.

It's Safe—Factor of safety of over 5 at full capacity . . . 100% Positive Automatic Stop when load reaches upper limit . . . Automatic Holding Brake prevents load from drifting when current is shut off . . . short, strong shafts minimize torsional stresses.

It's Protected—Controller is fire, dust and moisture proof . . . motor totally enclosed . . . gearing sealed in . . . motor and drum covered by easily removable covers.

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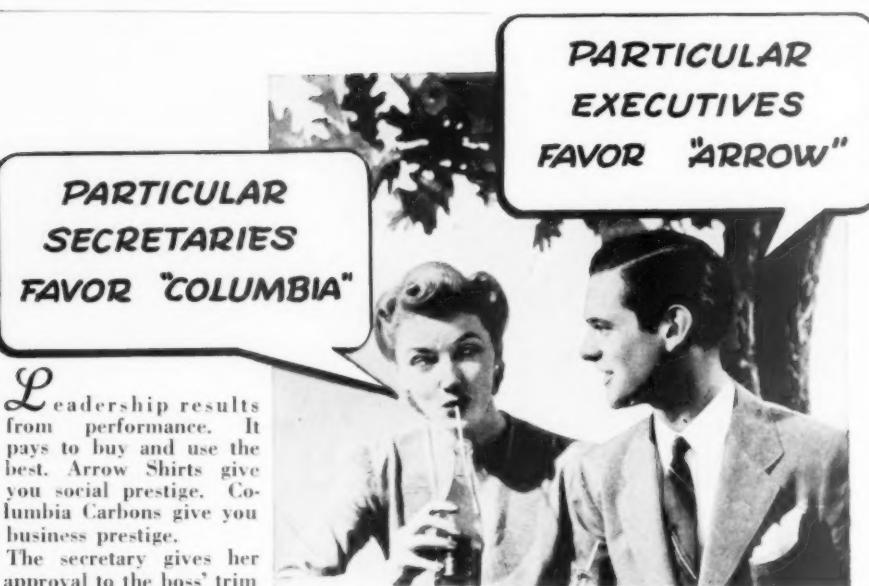
Please send me your complete catalog of LO-HED HOISTS.
 Ask your representative to get in touch with me promptly.

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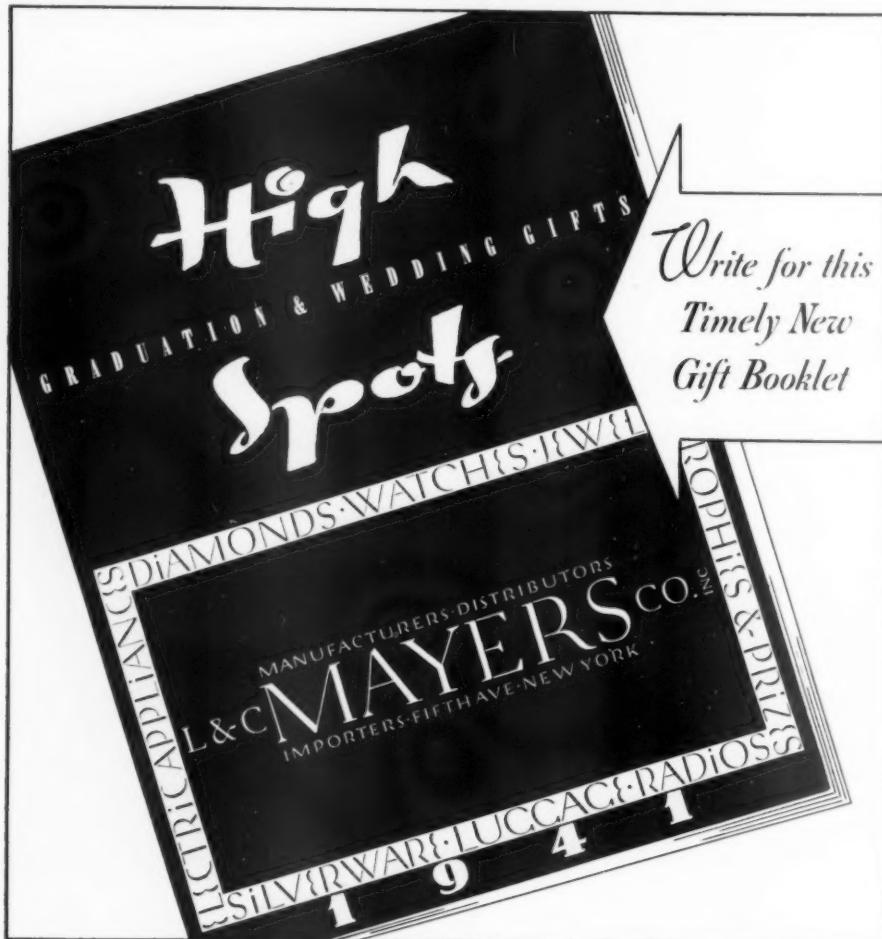
Leadership results from performance. It pays to buy and use the best. Arrow Shirts give you social prestige. Columbia Carbons give you business prestige. The secretary gives her approval to the boss' trim Arrow Shirts—the boss is enthusiastic about the beautifully clear, low cost letters that his secretary writes with Columbia Ribbons and Carbons. Both Arrow and Columbia products are made from "the customer's angle"—the same careful research, attention to details, expert workmanship—for good looks, long life, hard wear, lasting satisfaction.

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pany, as well as to the future of the nation, that the non-defense portion of our industrial structure be maintained on a healthy basis whether by material substitutions, product changes, or maintenance of minimum supplies of strategic materials.

Suppose you eliminate the manufacturing of electric refrigerators, stoves, washing machines, irons, etc. Such elimination would affect the entire states of Massachusetts and Ohio. It would more definitely affect the cities of Springfield, Massachusetts and Mansfield, Ohio, where are employed in one case a small percentage of the population, but in the other case you will find the town is supported perhaps 50% either directly or indirectly by Westinghouse.

Moreover, the people supplying these plants with raw materials, which are not essential to war effort, would further peril our American system of manufacturing and supply. Until such time as we reach full employment of both human and material resources in this country, it is essential that these plants continue to operate as a necessary part of American life.

Of course, we would rather produce products that bring human happiness than materials for human destruction, but we are dedicated first to do our full part in the National Defense.

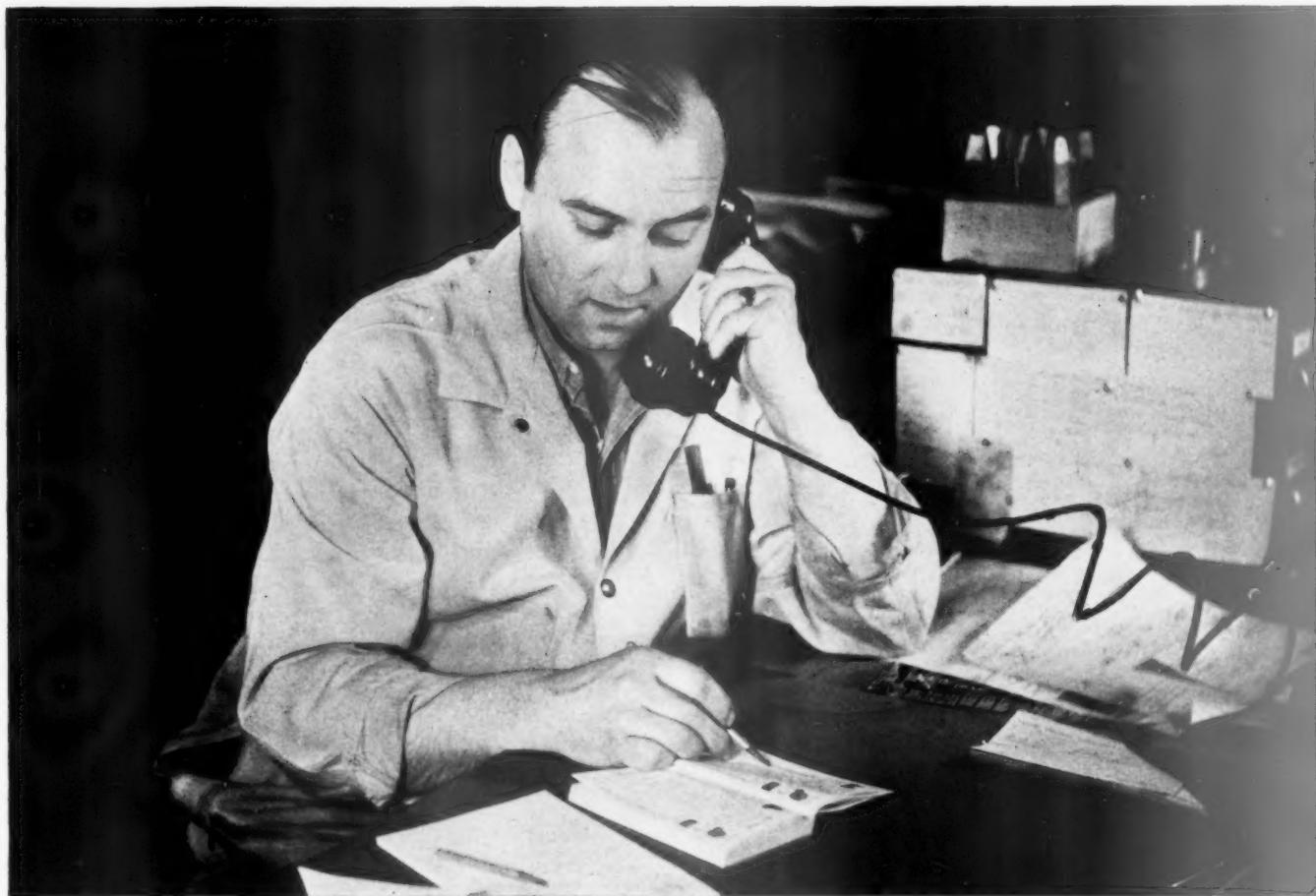
Conserving Strategic Materials

In line with this belief that non-defense activities should not be dropped, we have made every effort to conserve strategic materials and still keep our product lines going by making various substitutions. We are substituting rubber ice cube trays in order to conserve aluminum in our refrigerators. We are also substituting hard copper in evaporator doors and miscellaneous parts inside the refrigerator and in other home appliances, thereby conserving aluminum and, in some cases, zinc.

In our manufacture of electric fans, we are substituting cast iron for die cast zinc on certain parts. In our washing machine manufacture, we are using secondary aluminum castings to replace high grade zinc, which is a critical item at present. We are cutting down on our requirements of nickel for plating by substituting alternative processes. We have also cut down our uses of nickel in alloys by substituting chrome molybdenum steels instead of chrome nickel steels. We are now changing over to the use of chromium plated copper name plates instead of aluminum on our apparatus.

We have almost entirely eliminated the use of magnesium in our operations. In our commercial refrigerator lines, we have substituted high chromium steel for chrome nickel steel, and in our electric range line we are also using a high chrome steel instead of chrome nickel in order to conserve nickel.

One cannot live as we are living at this time, so close to vast changes in the making, without a sense of helplessness. The aluminum industry is more



.... AND I WANT 4 OF THESE NH48* GEARS LISTED ON PAGE 26!

This is a typical request received in the daily run of telephone orders for Boston Stock Gears. Simplify your own gear requirements and use our gear catalog as a ready reference. Make your selection from over 2,000 different sizes and types of gears. Then order by catalog number from any one of seventy-two distributors located throughout

the U.S.A. and Canada. These distributors carry large stocks of Boston Gears to give you the best gear service possible. Complete specifications on all Boston Gears — such as that given below — and the address of your nearest distributor are shown in our General Catalog No. 53. Write today for your free copy of this valuable catalog.

BOSTON GEAR WORKS, INC., NORTH QUINCY, MASS.

*A CATALOG NUMBER NH48 BOSTON SPUR GEAR IS LISTED ON PAGE 26 OF OUR GENERAL CATALOG NO. 53 AND IS CARRIED IN STOCK ACCORDING TO THE FOLLOWING SPECIFICATIONS:



Catalog No.	NH48	Style.....	Webbed	Hole.....	1"
Material.....	Cast Iron	Pressure Angle.....	$14\frac{1}{2}^\circ$	Hub Diam.....	$2\frac{1}{2}''$
Pitch.....	8	No. Teeth.....	48	Hub Proj.....	1"
Face.....	$1\frac{1}{4}''$	Pitch Diam.....	6.00"	List Price.....	\$4.40

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If you're one of the many Purchasing Agents planning to attend the Chicago Inform-a-Show on May 26-29, you are cordially invited to visit the Institute at Booth No. 16. For the P. A. who wants to be sure he is getting *sterilized, specification wipers* we have a number of helpful suggestions.

Maybe you aren't going to Chicago. In that event allow us to remind you that the Institute Seal on a bale of wipers guarantees four things—(1) Sterilization, (2) Specification Packing, (3) Correct Weight, (4) Fair Dealing. Whether or not you attend the convention—remember—to be certain of these four warranties—Demand the Institute Seal on every bale of wiping cloths.

The Sanitary Institute of America Consists of Forty-seven Members in Twenty-one of the United States and Canada. This Advertisement is Sponsored by the Following Members:

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Delta Waste Products Corp. 1625 Dean Street CHICAGO, ILLINOIS		ST. LOUIS, MO. Wiping Materials, Inc. 2000 N. Main Street
American Sanitary Rag Company 1001 W. North Ave.	Chicago Sanitary Rag Company 2137 S. Loomis Street	

For prices and samples write any above member. For Institute specifications write any member or The Sanitary Institute of America, 105 West Monroe Street, Chicago, Illinois.

Halsey Taylor

COOLER FOUNTAINS

FOR OFFICE OR PLANT

The clerical help in the office, the workers in the plant, all like the health-safe features of Halsey Taylor Cooler Fountains. Made in the modern electric or convenient ice models, they bring an abundant supply of uniformly cool water to help keep workers satisfied and production up! Get our complete catalog showing not only cooler but regular wall and pedestal types of fountains.



THE HALSEY W. TAYLOR CO.
WARREN, O.



THE ONLY COOLER FOUNTAIN WITH HEALTH-SAFE PROJECTOR

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than doubling its capacity in two years. The zinc industry is increasing its capacity more than 50% in two years. The copper industry is making very substantial increases in its capacity. Government authorities seemed to feel that the steel industry should materially increase its capacity. This was apparently stopped through the findings of a very brilliant engineer and business man, Gano Dunn, in a recent report, which showed even with the high demands on steel, a potential surplus of some eight to ten per cent.

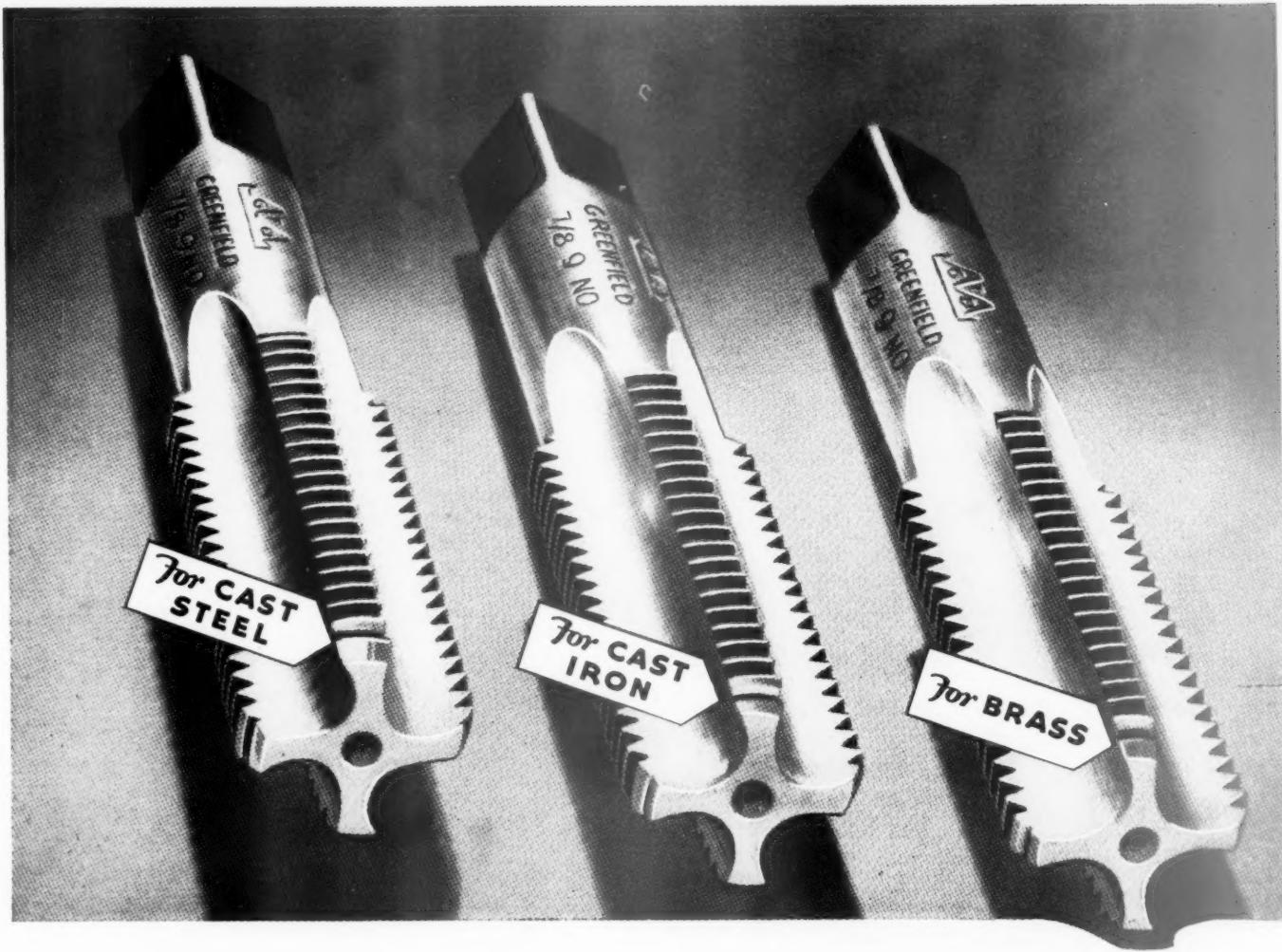
We, in buying positions, know that during most of the decade of the thirties, the copper, aluminum and steel industries have begged for business. They were able to sell from twenty to sixty per cent of their capacity. Zinc was a dog on the market—was sold below production cost. The situation that now exists is a paradox in industry and would make one with short sight gasp a bit.

Substitution Is No Threat

In addition to what I have just said, new industries are rapidly developing—the plastics, for instance. Many of you know that certain articles are being made and will be made in increasing volume from plastics and will never again be made from metals. One with a short vision would see that this industry and the plywood industry constitute a real threat to the future of metals. But most of you have lived long enough to have better judgment. Substitutes that have been brought in in the past have created other uses for the metals that were displaced and, thus, surplus metal has been absorbed in other ways. The United States and its foreign customers are not through in their developments. I have great confidence substitutes and metals will be used in greater quantities than ever before after the slack is taken up.

Men with vision and rich red blood flowing through their veins should and will face the difficulties which lie ahead and will develop new uses for material surpluses which will mean industry development and expansion in the United States—work for more people and, perhaps, solve many of the economic problems which a war always brings. Instead of these surpluses therefore becoming a drug on the market, they may prove a blessing in disguise in working out our economic problems after the war.

Fundamentally, there can be nothing wrong in changes which enhance our supplies. Businessmen must learn not to fear the superabundance of materials which American engineering genius is making available to them. They should instead be regarded as potential instruments for good, presenting a challenge to the imagination, skill and energy of American business—a challenge which will be met and out of which will arise a higher standard of living and a better America.



SOMETHING ABOUT TAPS

THESE three taps look alike superficially. But compare them carefully and you begin to notice little variations — a different "rake," the angle of the tap's cutting edge — variations in the thickness of the lands — perhaps a little different chamfer.

These are the small differences that "G.T.D. Greenfield" builds into taps when your specifications read "For Brass, For Cast Iron, For Steel." They make the difference between just average performance and *extra* performance.

Today you need extra performance as never

before. It may be difficult to get your tap orders increased 20% or 30%, but if you can get 20% or 30% more production out of the same number of taps, it's just as effective — and considerably less expensive. "G.T.D. Greenfield" Taps cost no more despite their high quality.

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MARVEL SAWs.

LOWER YOUR SAW BLADE COSTS



Everyone agrees that High Speed Steel makes the fastest cutting, longest lasting cutting edge for hack saw blades, but ordinary high speed steel saw blades usually break or shatter long before their cutting edge has served its full life.

The ideal blade is the MARVEL High-Speed-Edge Hack Saw Blade with its high speed steel cutting edge welded to a tough alloy steel body that makes this blade *positively unbreakable*. Box for box these unbreakable composite blades will out-cut and out last all others. Their great strength permits increased speeds and heavier feed, and tauter blade tensioning.

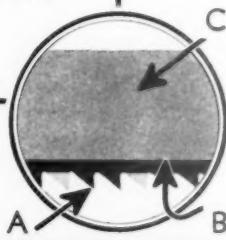
Standardize on MARVEL High-Speed-Edge Hack Saw Blade and you can safely step up all hack saw machines to full capacity—can get more cuts per hour, and uninterrupted production at lower blade cost.

Only MARVEL High-Speed-Edge Blades can be truly high speed and positively unbreakable.

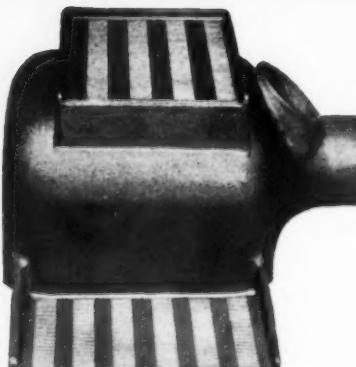
- A. High Speed Steel Cutting Edge.
- B. Integral Electric Weld.
- C. Tough Alloy Steel Body.

ARMSTRONG-BLUM MFG. CO.

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5700 Bloomingdale Ave., Chicago, U.S.A.
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For Gray Iron Castings



FOREST CITY produces castings of soft gray iron, high test semi-steel or alloy semi-steel. A recent soft gray iron casting for a housing cover produced in one of our foundries is pictured above.

Forest City supplies castings to widely diversified fields including:

Automotive
Pressure Pump
Office Equipment

Electrical and Household Appliances
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This wide diversification is backed by 50 years of casting experience—an experience that is at your command in meeting your casting requirements.

THE FOREST CITY FOUNDRIES COMPANY
2500 WEST 27TH STREET CLEVELAND, OHIO

PUBLIC BUYERS' CONFERENCE

The 13th annual session of the Public Buying Section, Institute of Government, will be held at the University of Southern California, June 11th and 12th. The theme of this year's meeting is "Cooperative Buying," stressing the common ground which all governmental purchasing officers may find in their responsibility of administering taxpayers' funds, and taking into consideration the special problems of the present day in relation to defense requirements. Leading speakers on the program include:

Verne Gehringer, Purchasing Agent for the County of San Diego and Secretary-Treasurer of the California State, County and Municipal Purchasing Agents' Association, "Cooperative Buying—Theory and Practice."

J. M. McCool, Chief Assistant Purchasing Agent of the County of Los Angeles, "General Problems in Buying."

Arthur Baker, Executive Secretary of the Purchasing Agents Association of Los Angeles, "A Suggested Plan and the Mechanics for Putting It Into Action."

1 1 1

CAN MANUFACTURERS CONSERVE TIN

More than 15% of the tin now used by can manufacturers may be saved without discriminating against any single group of can users, declares Ferris White, Vice President of the Can Manufacturers Institute, Inc., in telling of can makers' plans to conserve tin supplies for national defense and essential civilian uses.

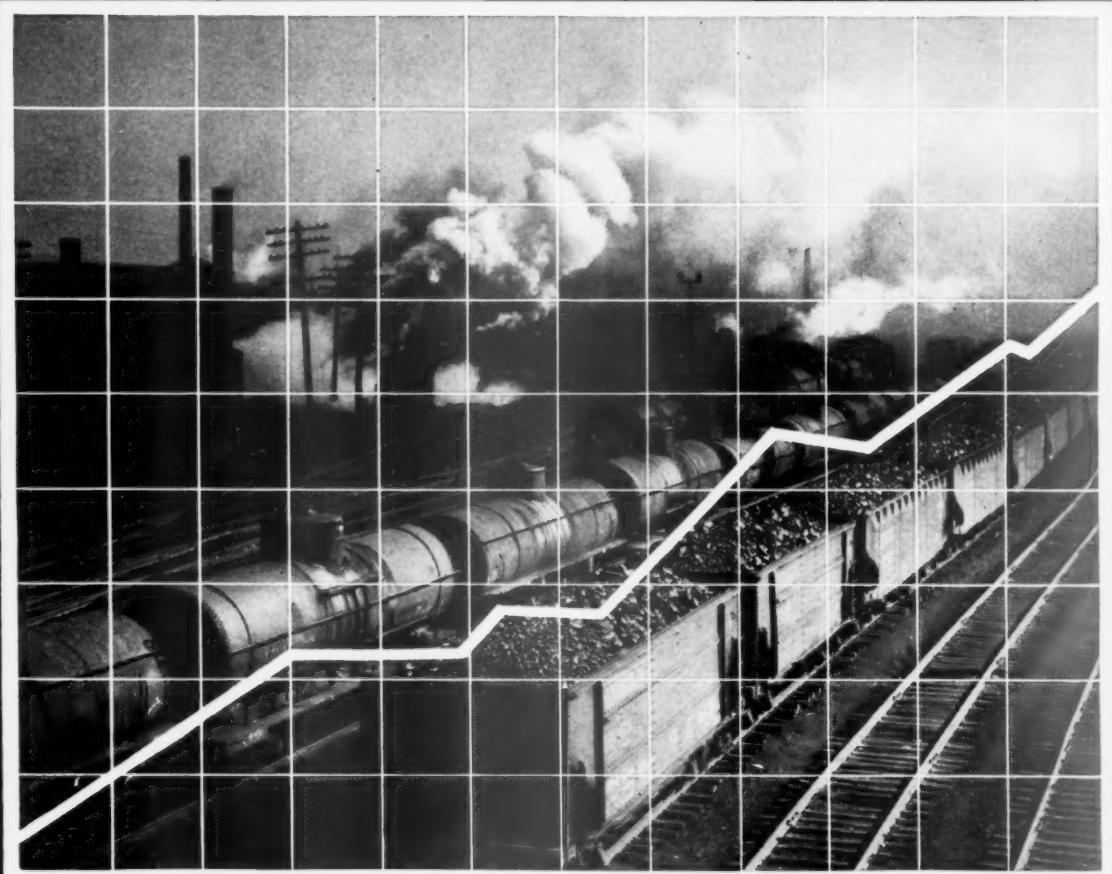
"This can be achieved," explained Mr. White, "first, by reducing the weight of the coating of tin on cans by 10% (such a reduction could be effected on 95% of the present food containers), and, second, by the savings which could be effected by switching from tin plate to other types of coated steel; for example, some products, such as paint, oil, and gasoline may be packed in containers made of terne plate. Terne plate is made of tin and lead, and, therefore requires less tin than tin plate.

"The Institute is now calling to the attention of its members such possible tin savings because can manufacturers use about half of the tin consumed in the United States. A saving of up to 7,500 tons of tin annually, based on the present rate of use, by can manufacturers would approximate a saving of about one-tenth of all the tin used in this country each year.

"There is no emergency in tin at present, Robert E. McConnell, Chief of the Office of Production Management's Unit of Conservation told can makers in a recent conference at Washington. Mr. McConnell said that present tin stocks in the United States are sufficient for about 14 months' operations and current imports are sufficient to meet current defense and civilian requirements.

"In view of these facts, along with the fact that ship masters regard tin a

YOUR FUEL BILLS MAY BE GOING UP...



BUT YOUR FUEL COSTS CAN GO DOWN!

As production loads grow heavier, you're sure to spend more money for fuel. *How much more* depends largely on how well your equipment is insulated. The right types of insulation, properly applied, reduce heat losses . . . cut fuel costs . . . wherever they are used. And that is where the Johns-Manville Insulation-Engineering Service can help you.

J-M Insulation Engineers will show you new ways to reduce fuel and refrigeration costs . . . eliminate every important source of heat waste in your plant. They check all equipment carefully for obsolete and incomplete insulation . . . show you where new insulation can be profitably applied or

existing applications improved. They use exactly the right *material* for every temperature and service condition . . . exactly the right *thickness* for maximum economy and efficiency. And back of their recommendations are Johns-Manville's 83 years' experience in the insulation field, and a complete line of insulating materials in block, brick, cement and pipe-covering form.

This service, available to you without cost, can help you make important savings in your fuel bills. For full information, as well as details on the complete line of J-M Insulations, write Johns-Manville, 22 East 40th Street, New York, N. Y.



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FOR EVERY TEMPERATURE...FOR EVERY SERVICE...

Superex . . . 85% Magnesia . . . Asbesto-Sponge Felted . . . Sil-O-Cel . . . Marinite . . . Anti-Sweat . . . Rock Cork



53 Different Oakite Materials Available to Meet Your Most Exacting Cleaning Needs!

Of the 53 different Oakite materials produced, each is scientifically designed for a specific type of production or maintenance cleaning. Different in purpose but alike in uniform high quality, they bring to over 21,000 American and Canadian concerns dependable cleaning results; safety to plant, product and personnel; definite savings in time, effort and money.

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OAKITE Certified **CLEANING**
MATERIALS . . . METHODS . . . SERVICE

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WANTED: SHIPPING ADVICE ON THIS NEW PRODUCT

RECEIVED: THIS LOW COST BUNDLE
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● The product was new to the manufacturer securing a Defense Order for many thousands of them. Their question was how to ship the material to best advantage. Our answer was the Signode bundle illustrated at right—a bundle weighing 2,500-lbs. bound with Signode Heavy Duty Strapping—eliminating the need and the cost of crating or boxing—lowest practical shipping cost to assure Safe Arrival. Let a Signode representative give you such advice on your products—without cost or obligation.

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Representatives in Principal Cities Throughout U. S. and Canada



For many Mid-Western purchasing executives who buy on the basis of results obtained, this capable Oakite Service Representative has lowered costs and established worthwhile advantages in their plants because of his wide experience in solving cleaning problems.

This same competent, practical help is available to you through the Oakite Representative in your locality. Whatever your cleaning problem, ask to have him call. Write today . . . no obligation, of course.

desirable cargo as ballast for bulkier shipments, the tin situation at present is easy. Mr. McConnell does not expect drastic action to prove necessary or desirable under present conditions, but the members of our Institute know that the present is a highly desirable time to plan for savings and prepare effective methods in the event of an emergency.

"Since the can manufacturing industry consumes about half of the tin annually used in this country, we should consider broadening the use of other coatings for containers of products not demanding tin plate, a substitution which will effect important savings of tin for such containers as require a coat of tin."

1 1 1

NICKEL-STEEL PRIORITIES

Following the establishment of a mandatory priority system for nickel on March 7th, producers and distributors of nickel-steel were placed under a general priorities system on April 10th. The order, which also regulated the processing of scrap, sets forth the most complete and far reaching control of stocks yet established on any commodity by the Priorities Division, and the technical regulations are more complicated, with separate provisions for producers and distributors.

The industry-wide control has been invoked because of the tight position of supply in nickel and the demand for special nickel-bearing steels and alloys used in the defense program. O.P.M. records indicate that March imports of 14,500,000 pounds from British Empire sources was almost exactly equal to the consumption needs for that period.

As defined in the order, nickel-bearing steel is steel in which the nickel content 4/10 of 1% or more, or any steel containing less than that amount if nickel has been specified by the customer or is known to have been added to obtain desired qualities lent to steel by nickel.

The provisions of the order are as follows:

1. Defense orders are to be filled ahead of civilian and non-defense orders. All defense orders, including those for Great Britain, will automatically take a preference rating of A-10 unless higher ratings have specifically been assigned.

2. An overall schedule of preference ratings similar to that established for aluminum is provided, ranging from the A-class (defense orders) down to B-8. This system is provided to allow producers and distributors to fit customers' orders into various classifications, eliminating the necessity of applying an individual preference rating to each order.

3. Nickel-steel producers may make shipments to all classes of customers, but distributors from warehouse stocks may not, until further notice, fill orders falling below the B-3 classification. This is to conserve warehouse stocks for defense purposes.

4. Inventories of nickel-steel held by customers or producers are to be held to an amount generally not in excess of



TANGENTS don't "just grow" on Weldells. We put them there. And we put them there for two mighty good reasons: In the first place it's only sound engineering to keep the weld away from the most highly stressed* zone in the fitting. In the second place, tangents make it easier to line up and weld.

Of course it requires a distinct manufacturing operation to provide these accurately formed straight segments on each end of every Weldell. And of course that operation costs us something—but not you.

Sound engineering design—maximum utility, convenience and economy—these are principles

that Taylor Forge has applied consistently for more than 40 years. That's why Weldells have tangents—and why they have the seven other features listed opposite.

An important point to remember is that the extra-value features of Weldells, and all other Taylor Forge Fittings, represent extra dividends for their users. Weldell quality costs no more.

Taylor Forge Catalog 401—the most complete information on Welding Fittings and Forged Steel Flanges ever assembled—is yours for the asking. It contains a lot of useful engineering data, too. Write for it today.

TAYLOR FORGE & PIPE WORKS, General Offices & Works: Chicago, P. O. Box 485
New York Office: 50 Church Street • Philadelphia Office: Broad Street Station Building

*The reference here is to stresses caused by line movements due to expansion, rather than those caused by internal pressure. Mathematical analysis shows that stresses are maximum in the curved section of the fitting and that such stresses far exceed those existing in the straight section even at points quite close to the point of tangency.

Taylor Forge
WeldELLS
Seamless Pipe Fittings for Welding

When writing Taylor Forge & Pipe Works please mention Purchasing

OTHER EXTRA-VALUE FEATURES

You can't ask for a single thing in welding fittings that Weldells do not have. No other fittings for pipe welding combine these eight features. In addition to tangents, the features are:

1. **Seamless**—greater strength and uniformity.
2. **Precision quarter-marked ends**—simplify layout and help insure accuracy.
3. **Selective reinforcement**—provides uniform strength.
4. **Permanent and complete identification marking**—saves time and eliminates errors in shop and field.
5. **Wall thickness never less than specification minimum**—assures full strength and long life.
6. **Machine tool beveled ends**—provides best welding surface and accurate bevel and land.
7. **The most complete line of Welding Fittings and Forged Steel Flanges in the World**—insures complete service and undivided responsibility.

Since the marking is pressed into the metal before forming, and since the manufacture of the fittings is carried out at a forging temperature, each in effect receives a heat treatment after the operation. The indentations have no sharp corners or edges and the marking has no effect on the strength of the fitting.

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PLASTICS problems have a way of disappearing when placed in the capable hands of *Richardson Plastics*. In Richardson Research, Design and Engineering Laboratories new products are born; others redesigned and given new beauty, new eye-appeal, new salability. Here, also, production costs are cut through the use of **INSUROK** in manufacturing processes. Unburden yourself of Plastics Problems. Write Richardson today for details. No obligation, naturally.

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Valuable 74-page "HAND BOOK OF BUILDING MAINTENANCE" available to those requesting on business letterhead.

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DRAWING PENCILS

10c
EACH

Manufactured
in U. S. A.



Koh-I-Noor Pencil
Company, Inc.
373 Fourth Ave.
New York, N. Y.

30 days' supply. All producers and distributors are required to keep closely detailed inventory records, also records of shipments, orders, and production, which may be examined by the Priorities Division.

Beginning in May, producers of nickel-bearing steel may make shipments to distributors only in quantities equal, on the average, to shipments during the first four months of the year.

5. Producers may not engage in the toll fabrication of scrap or the processing of nickel steel for customers, without special permission from the Director of Priorities.

Preference ratings are in accordance with the following schedule:

A-1 to A-10, reserved for defense orders, and to orders which the Director of Priorities may assign to this group.

BB, reserved for emergency assignment, for special cases of immediate urgency.

B-1, orders for the manufacture of parts for the repair of existing apparatus, or for manufacture of new apparatus directly or indirectly in connection with the manufacture of material required for fulfillment of defense orders, although such orders may not bear specific preference ratings.

B-2, orders for manufacture of parts for repair of existing equipment which are necessary for essential production or services.

B-3, orders for new apparatus serving the same purpose as B-2 orders.

B-4, orders for products essential to protection of public health and safety.

B-5, orders for customers to whom 1940 shipments of nickel steel averaged less than one ton per month. (This rating is temporary, pending further investigation.)

B-6, orders for customers whose use does not exceed two pounds per \$100 of final sales value of articles of which the nickel steel is an essential component.

B-7, orders for which no reasonably satisfactory substitute is available.

B-8, orders for which reasonably satisfactory substitutes can be made available. (Temporary rating, effective only to the time when such substitution is effected.)

Customers whose orders fall in classes B-4 to B-8 may receive only stipulated percentages of their 1940 average monthly shipments from the same producer for corresponding purposes. These percentages are:

B-4, 70%
B-5, 50%
B-6, 40%
B-7, 30%
B-8, 10%

Customers who use nickel steel for two or more different types of products bearing different preference ratings, will have orders for each type treated separately.

The effect of the order regarding distributors' shipments is to practically cut off all supplies from the small user for non-defense production, as well as to



We'll Greet You at Booth No. 5

As usual, Lunkenheimer will be an exhibitor at the Informashow, held this year in Chicago.

Drop in to see us . . . look around . . . rest a bit . . . discuss whatever valve problems you may have.

We'll be happy to have you.

REPRESENTATIVES IN ATTENDANCE

Harry A. Burdorf, Vice President in Charge of Sales

M. F. Brenner . . .	Manager Chicago Office
E. W. Reinertsen . . .	Milwaukee
A. F. Meyer . . .	Des Moines
Perry Cooper . . .	Chicago
V. M. Holopeter . . .	Chicago
E. W. Frayling . . .	Chicago

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 EXPORT DEPT. 318-322 HUDSON ST., NEW YORK

LUNKENHEIMER

When writing The Lunkenheimer Co. please mention Purchasing

28-51H-40

Many manufacturers are keeping their shipments in step with increased production by using General Box facilities. There are thirteen General Box plants, strategically located, to serve Industrial America, promptly and economically. Skilled General Box technicians help determine the type of container which can be packed and handled fastest, provide adequate protection and assure minimum shipping costs for each product.

The General All-Bound Box, for example, is used for shipment of many types of products. It provides important advantages and time, material and cost savings. Used for shipments up to 500 lbs. Mail the coupon for details.



Motor Oil



Hammers



Steel Rivets



Storage Batteries

Send for this free, illustrated booklet showing how General boxes, crates and special containers are used to make the shipment of many types of products faster, safer, more economical. Mail the coupon today.



GENERAL BOX COMPANY

General Offices: 48 Illinois St., Chicago, Ill. District Offices and Plants: Brooklyn, Cincinnati, Detroit, East St. Louis, Kansas City, Louisville, Milwaukee, New Orleans, Sheboygan, Winchendon. Continental Box Company, Inc.: Houston, Dallas.

GENERAL BOX COMPANY

48 Illinois St., Chicago, Ill.

Send a copy of the new booklet, "How Research Can Save \$8 for You."

Have the nearest General Box engineer call.

Name
Address
City State

negate the normal warehousing function. Purchases by such consumers are normally made through the distributor, one of whose major economic functions is to supply just such requirements. Without prior contacts and purchase records from producers, the consumer is unable to avail himself of even the limited percentages cited above, and indeed, such orders are generally uneconomic on a mill-shipment basis.

NEW TIME-SAVER FOR INDUSTRY



PLANT - PRODUCTION DIRECTORY the answer to a long felt need.

Such statements as the following are typical—"Just what we have been looking for"—"The size of PLANT-PRODUCTION DIRECTORY especially appeals to us. It is indeed compiled for fast finding"—"It is complete and meets every requirement"—"We put it to immediate use upon receiving it"—"We had occasion to use it 21 times yesterday"—"You have eliminated all the disadvantages of most directories"—"Congratulation—it was time someone produced a really modern directory"—"Your directory replaces all other directories for our use"—"We can cut our searching time in half with PLANT-PRODUCTION DIRECTORY"—"Your choice of readable type coupled with its entire appearance is excellent"—"Your technical data section is an added ten strike in industrial directory publishing".

PLANT - PRODUCTION DIRECTORY weighs only six pounds—and yet it is as complete as other directories weighing three and four times as much. Its new four column page make-up is an innovation in directory publishing—and has met with quick approval. The technical data section, another new feature, has been heralded by users as an excellent addition.

In order to supply the demand of industry, a second edition of PLANT-PRODUCTION DIRECTORY will be published in September, 1941. This edition will be delivered to 12,500 industrial executives who did not receive the first edition. This means, of course, that those advertising in both editions

Bassick casters at your service
A size and type for every need
Whatever load you wish to carry
They move with ease and speed!



For everything that moves. From tea tables to ten ton trucks.



Standardize on Bassick Casters, and be assured of economy with a guarantee of dependable service and satisfaction.

THE BASSICK COMPANY

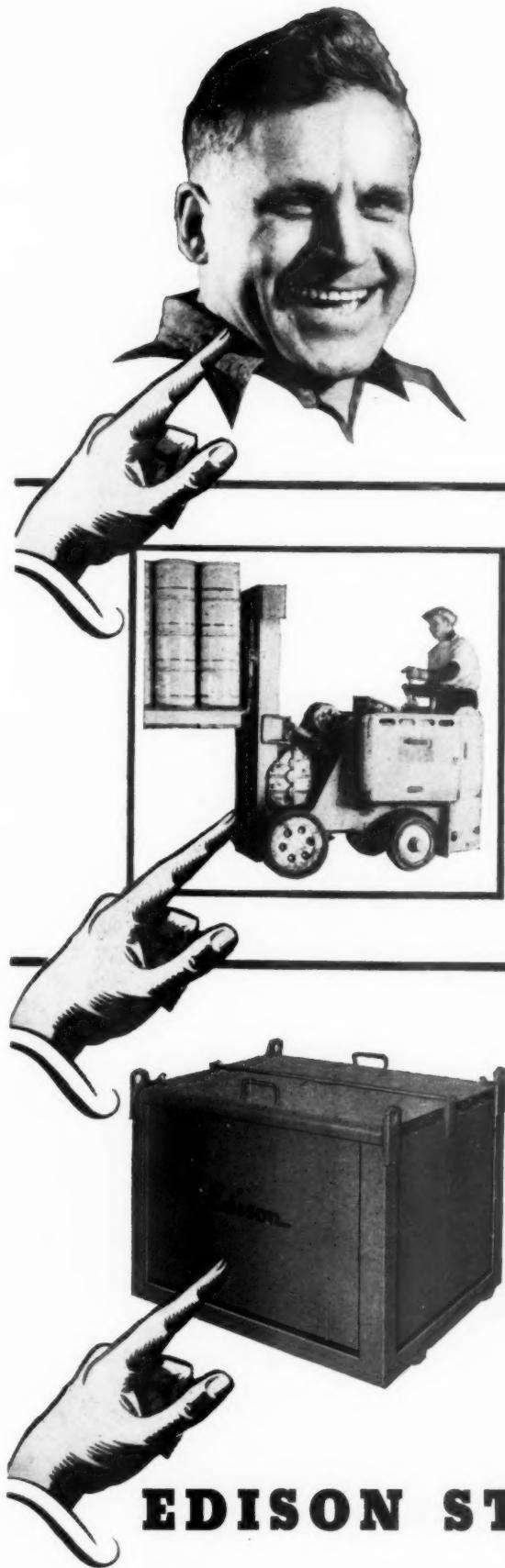
Bridgeport Connecticut

Division of the Stewart-Warner Corp., Chicago, Ill.

Canadian Factory:

STEWART-WARNER-ALEMITE CORP.
OF CANADA, LTD., BELLEVILLE, ONTARIO

DO THESE 3 WORK FOR YOU?



THIS MAN *is the Material-Handling Manager.* He knows that mass-production calls for mass-handling—and that keeping work-in-progress on the move is a vital step in getting work done. His job is to get work there when the men and machines are ready for it—and to take it away for the next operation the minute it's done. In many modern plants, this manager has the help of . . .

THIS TRUCK. It loads itself, carries its load and unloads itself as readily as you tip your hat. It does its work with the minimum of risk to men and materials. It is at its best when it is powered by . . .

THIS EDISON ALKALINE BATTERY.
This power-source is as relatively cheap as line-current and just as dependable. It's rugged—because it's built of steel. It's nearly fool-proof—it costs little to maintain—it's quiet—it gives off no obnoxious fumes. Its performance is predictable.

EDISON STORAGE BATTERY

DIVISION OF THOMAS A. EDISON, INC., WEST ORANGE, N. J.

You can use the telephone to call an Edison representative. You will find him well qualified to discuss material-handling costs. (Offices in principal cities).

When writing Edison Storage Battery please mention Purchasing



Your Defense Against the Stealthy Invasion of HEAT-FAG

The dangerous, insidious thing about salt loss is its silent, unseen undermining of efficiency.

It affects the stamina and accuracy of ALL workers in hot weather — on hot jobs.

As workers sweat, salt is lost from their bodies. As the natural salt balance in the system is disturbed, there is a definite lowering of efficiency. Workers tire, make mistakes, feel out of sorts. And, production suffers.

That's Heat-Fag. It has long taken a terrific, almost unsuspected toll of American industry . . . yet the remedy is simple and inexpensive. Morton's salt tablets, in convenient dispensers at all drinking fountains, make it easy for workers to replace the salt lost by sweating.



Place Morton Dispensers At All Drinking Fountains

Morton's modern dispensers deliver salt tablets, one at a time, quickly, cleanly, and without crushing or waste. Sanitary, easily filled — durable and dependable.

Morton's salt tablets contain the most highly refined salt, pressed into convenient tablet form, easy to take with a drink of water. They dissolve in less than 40 sec. after swallowing. Order direct from this ad, or from your distributor.

DISPENSERS \$3.25
500 Tablet size

1000 Tablet size \$4.00

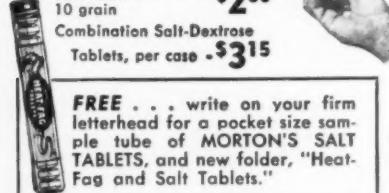
TABLETS — Case of 9000

Salt Tablets \$2.60

10 grain

Combination Salt-Dextrose

Tablets, per case \$3.15



FREE . . . write on your firm letterhead for a pocket size sample tube of MORTON'S SALT TABLETS, and new folder, "Heat-Fag and Salt Tablets."

MORTON SALT COMPANY
CHICAGO, ILLINOIS

during 1941 will secure 25,000 non-duplicated circulation.

Industrial Directories, Inc., 333 N. Michigan Avenue, Chicago, Ill., are the publishers—and all questions pertaining to PLANT-PRODUCTION DIRECTORY will be welcomed by the publishers.

COAL DIRECTORY

The twentieth annual edition of MacQuown's Coal Directory and Buyers Guide, is now available from the publishers, National Coal Publications, 304 Law Bulletin Building, Pittsburgh, Pa. It contains complete data on all coal selling and coal operating companies showing clearly the relationship between them, completely cross-indexed to provide all information on any company. Sales agencies are listed by cities, including main and branch offices, street addresses, telephone numbers, and names of executives. Operating companies are listed by states and counties, with pertinent data of interest to the coal buyer and to anyone interested in the production, sale, transportation or consumption of coal and coke. Special sections are devoted to trade names, bee-hive and by-product coke. All of this is included in the "Abridged Edition" at \$10.00 per copy. The "Standard Edition" at \$15.00 includes, besides the above, (1) a complete section with detailed data on coal and coke operations on the Baltimore & Ohio Railroad, with maps showing locations of mines; (2) a section dealing with coal docks on the Great Lakes and the St. Lawrence River, both in the United States and Canada, with detailed data on each dock and a map of the Great Lakes area showing locations of docks; (3) a section on anthracite including data on anthracite burning equipment and a map showing locations of all operators.



"INTEREST" ON YOUR INVESTMENT

To be sure your new, high-speed, high-production equipment will repay you for its installation, give your operators the benefit of highest quality cutting tools at the workhead, where production is determined.

MORSE
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NEW BEDFORD, MASS., U. S. A.

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CLARK
the Honest Name of an Honest Product
SINCE 1854

Inspires the kind of confidence in the trade that 87 years of sincere effort — high ideals — top quality materials and fine workmanship have established.

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QUALITY

Specify
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**BOLTS—NUTS—SCREWS
AND RIVETS—**

CLARK BROS BOLT CO.
MILLDALE, CONN.

indexed by products, supplemented by an alphabetical list of manufacturers and a directory of trade names used on packaging products, supplies and equipment. The catalog is edited by Albert Q. Maisel, and is published by the Breskin Publishing Corp., 122 East 42nd St., New York City.

1 1 1

**FOOD PRODUCTS MANUFACTURERS
EXTEND RESERVE STOCKS**

According to reports in food and grocery trade circles, manufacturers of these products have extended their purchases of raw materials and also their warehouse reserves of finished products to a considerable extent. This policy is in anticipation of possible difficulties which may develop in transportation and other handicaps to normal operations, and also in anticipation of larger demand for such items as are likely to figure in army purchasing and in the operation of the lend-lease program. Without resorting to 'hoarding' tactics, requirements of sugar and coffee, for example, are reported as well covered in forward commitments. Where the nature of the finished product permits, larger stocks are being accumulated at important distributing centers, particularly in the case of goods moving both ways in intercoastal trade, where a possible curtailment of steamer service may complicate the transportation problem, and may involve an increase in costs if all-rail shipments are made necessary.

Rail carriers are optimistic in respect to the supply of freight cars, but manufacturers regard the situation as somewhat uncertain and advocate a course of action which will minimize the need for general rail priorities as the defense program places a heavier burden on rail facilities.

Packaging policies have also come in for serious attention, particularly in finding suitable alternatives for tin foil and aluminum, the reduction of weight in the tin coating on cans, and other means of cooperating with the efforts of defense officials to conserve supplies of such materials.

1 1 1

AIRCRAFT TUBING DATA

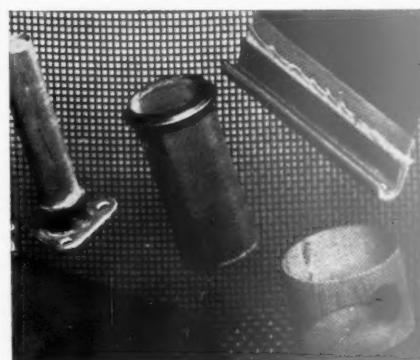
A comprehensive book about aircraft tubing has been compiled by the Summerill Tubing Company, with John E. Younger of the University of Maryland as consulting editor. The book embraces all features of aircraft tubing from its manufacture and fabrication to the selection of sizes from load curves. All kinds of engineering information, tables and curves are included, as well as detailed discussions of welding. The book is available for \$1.50, or \$2.00 with a ring binder. Summerill Tubing Co., Bridgeport, Pa.

1 1 1

Stuart F. Heinritz, Editor of PURCHASING, addressed the New York Sales Managers' Club April 25th on the topic, "Business Begins With Buying."

**JELLIFF
WIRE MESH
ASSEMBLIES**

**... IN MANY SHAPES
... OF MANY METALS
... FOR MANY USES**



**DO YOU USE
PARTS LIKE THESE?**

JELLIFF Industrial Wire Cloth is made in various weaves, mesh sizes and metals or alloys best suited to your needs. Rolled selvedge (a Jelliff patent) eliminates raveled edges, broken or loose strands, and uneven mesh. We are expert in adapting wire cloth to intricate mesh assemblies, attaching molded rubber or sewed canvas gaskets to mesh filters. Whether it be wire mesh for carburetors or valves, screens or strainers, in the airplane, railroad or shipbuilding industry, **JELLIFF** is ready—and willing—to devote an experience of over 60 years in wire cloth making, to your needs.

Keep LEKTROMESH in mind

This new product—a wire cloth of virgin metal deposited electrolytically—not woven—can quickly and inexpensively be formed into screen of any size, shape or variety of design, in continuous sheets of any desired length or thickness in standard width and mesh sizes. So made, it can be drawn, stamped, welded or soldered.

To Purchasing Agents:

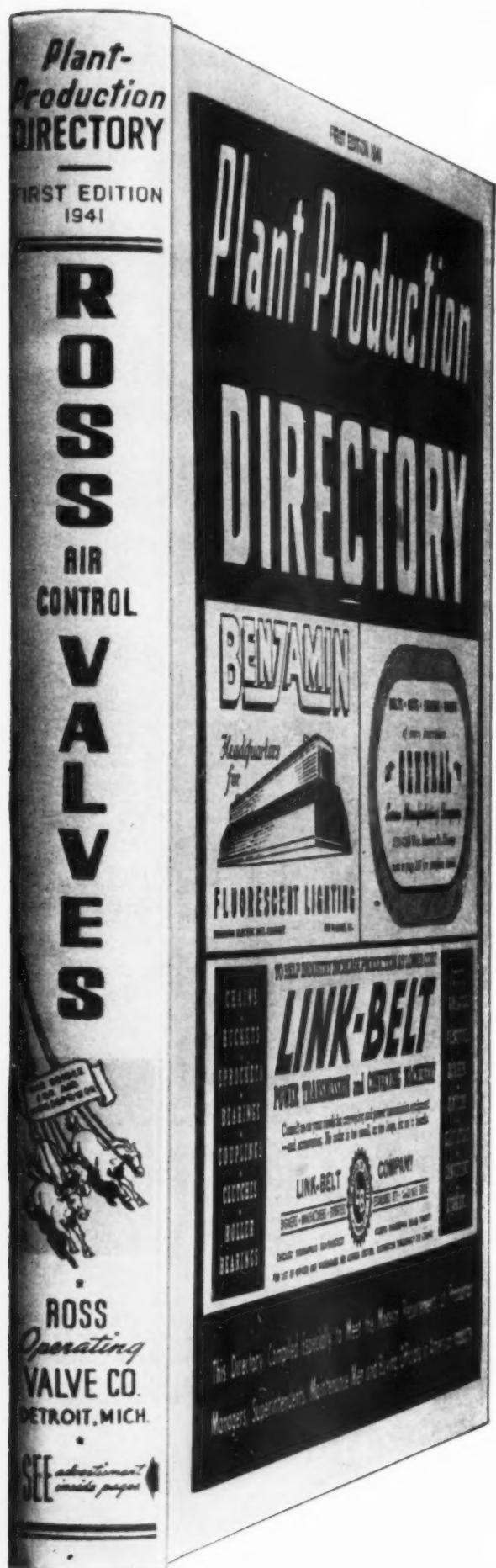
Upon request information can be quickly secured from Jelliff Sales-Representatives working out from key cities, located in or near your plant.

Other JELLIFF Products:

Screen Cloth	Fabricated Screen Parts
Industrial Mesh	Resistance Wire
Insect Screen	Dipping Baskets
Lektromesh	Metal Filter Cloth

**Write Jelliff for Specific
Needs on Above**





Sources of supply found quicker and easier with **PLANT PRODUCTION DIRECTORY**

Source of Supply

for all industrial equipment and products, you can now locate in a fraction of the time formerly required.

PLANT-PRODUCTION DIRECTORY

just off the press, makes this possible. Here is a startling new development in industrial directory publishing.

In tune with the times, PLANT-PRODUCTION DIRECTORY is both modern and streamlined. It is actually "stripped for action." To help you, all unnecessary classifications have been eliminated. Decreased weight and larger page size make PLANT-PRODUCTION DIRECTORY the ideal directory for your constant use.

YOU FIND WHAT YOU WANT FASTER!

The new high-speed four-column page and easy-to-read typographical construction of Plant-Production Directory helps you find the proper classification in a jiffy! There are no unnecessary listings or advertisements of manufacturers under cross references to confuse you. Cross references that do appear in Plant-Production Directory direct you to the listing that experience indicates, is the most universal descriptive term.

DID YOU RECEIVE THE FIRST EDITION?

A mailing of 12,000 copies of Plant-Production Directory has just been completed. No doubt some one in your company has received a copy. If not, write us. If it is impossible to supply you now, we will include your name in the next mailing.

Use Plant-Production Directory for complete information in regard to manufacturers of industrial supplies, machinery and equipment. Plant-Production Directory, 333 N. Michigan Ave., Chicago; 205 E. 42nd St., New York; Leader Building, Cleveland.

Plant-Production DIRECTORY

A Conover-Mast Publication

Buy SAFET STAK
SPACE SAVER LETTER FILES

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Seldom Needed
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Made In Both
Vertical and Horizontal
Types

Only \$2.57 Each—Lots 5-99
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For that correspondence that "just must be kept", yet is seldom referred to and doesn't justify folders and guides, your best and lowest cost filing equipment is SAFET STAK SPACE SAVERS.

Units are interlocking and can be stacked to any height. Buy as needed file by file or in quantities. Outside dimension of vertical type—9 1/8" wide x 11-15/16" high x 2 1/8" deep.

Note—For the storage of your semi-active records order the regular horizontal SAFET STAK Steel Letter Files.

The Steel Storage File Co.
2216 West 63rd Street
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ORIGINATORS OF STEEL STORAGE FILES

**Harper's
Bolts
Don't Rust!**

EACH HARPER bolt, nut, screw, washer, rivet or other fastening is made of one or another of the metals listed at the left . . . resists rust, corrosion and other tough conditions. Easily cleaned.

3600 items in stock, large quantities of each for immediate shipment. Special fastenings made to order . . . quickly. Send for four color catalog and reference book.

THE H. M. HARPER COMPANY
2606 Fletcher St., Chicago, Ill.

HARPER
Chicago

CONFERENCE ON HOSPITAL PURCHASING

The First Annual Conference on Hospital Purchasing will be held at Johns Hopkins University, Baltimore, Maryland, June 9th to 14th. It is to be conducted by the Committee on Purchasing of the American Hospital Association's Council on Administrative Practice. Cooperating in the meeting are the Baltimore Hospital Conference and Johns Hopkins University.

In announcing the conference, the Association states:

Hospital administrators realize that purchasing, as one of the most important functions in the hospital, has not had the attention it deserves, and that personnel carrying this responsibility has had no opportunity for specific instruction. Agreeing with Administrators, the Committee on Purchasing of the Council on Administrative Practice, American Hospital Association, is offering the First Annual Institute on Hospital Purchasing. This will be conducted by the Committee on Purchasing through its Committee on Arrangements, with the cooperation of the Baltimore Hospital Conference and Johns Hopkins University.

The plan provides for sessions in both the morning and afternoon. Each session will be divided into two parts: one devoted to the presentation of a designated subject by the speaker, and the second to a seminar to be conducted by the speaker on the subject he has presented, thus affording members of the Institute an opportunity for thorough discussion of each subject. Speakers have been selected who are peculiarly fitted for the topics assigned, and those to whom the more technical subjects of purchasing have been assigned, are men who are devoting their full time as Purchasing Agents and have had wide experience in this field.

The plan further provides for round table conferences on three evenings, when there will be opportunity for further development of the subjects which have been presented, or for asking questions regarding any phase of purchasing which may not have been covered in the organized program. While the program is primarily designed to cover general purchasing procedures, one afternoon will be devoted to the purchasing of specific commodities. Likewise, questions relating to specific commodities can be raised during the evening round tables. On Saturday morning, there will be a general review of the entire program, so that as far as possible, all phases of hospital purchasing will be fully covered.

In the published program, sub-topics are noted under each chief subject. These are not intended to limit a speaker. He will be expected to develop his subject as fully as possible. They are mentioned only to avoid duplication by speakers, and to definitely indicate material to be covered.

A certificate of attendance, signed by the Chairman of the Institute and the President and Executive Secretary of the American Hospital Association will

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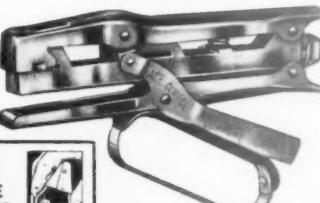
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be given to those registrants who attend all sessions. These certificates will be presented at dinner on Friday evening."

Membership in the Institute is to be limited to 75, and persons eligible for registration are men or women who hold administrative positions in a hospital and who, wholly or in part, have purchasing responsibilities delegated to them. The registration fee is \$10.00. Reference will be made to the Manual of Specifications published by the American Hospital Association (Bulletin No. 208).

Sessions are to be held on the campus of the Johns Hopkins University. Dormitory accommodations and dining hall on the campus are also available at a fee (for room and board) of \$20.00 for the period.

The program is as follows:

Monday, June 9

Morning Conference

Presiding Officer: Neal R. Johnson, Purchasing Agent, Johns Hopkins Hospital.

Official greetings, by Winford H. Smith, M.D., Director of Johns Hopkins Hospital, Baltimore; E. W. Berry, Provost of Johns Hopkins University, Baltimore; and Arden E. Hardgrove, Superintendent of Norton Memorial Infirmary, Louisville, Ky. General Instructions, by Parker J. McMillin, Superintendent of Baltimore City Hospitals.

"Purchasing as a Function in the Hospital," by Edgar C. Hayhow, Superintendent of Paterson (N.J.) General Hospital. Relationship to the administrative organization; centralization of purchasing authority; responsibility of the Purchasing Agent; cooperation with hospital departments; ethics of the purchasing department.

Afternoon Conference

Presiding Officer: Wm. H. Moreland, Administrator of the West Baltimore General Hospital.

"Purchasing Procedure," by Warren W. Irwin, Purchasing Agent of the Strong Memorial Hospital and University and Rochester, Rochester, N. Y., former Vice President of the National Association of Purchasing Agents. Forms and records; personnel; reference material; desirable contacts.

Seminar.

Evening Conference

Round table discussion, led by Parker J. McMillin.

Tuesday, June 10

Morning Conference

Presiding Officer: Dr. A. J. Lomas, Director of the Catholic Hospitals of Baltimore.

"Standardization and Specifications for Hospital Supplies," by John N. Hatfield, Administrator of the Pennsylvania Hospital, Philadelphia. Simplification; how to determine standards; manual of specifications; economies to be gained.

Seminar.

Afternoon Conference

Presiding Officer: Stewart B. Crawford,



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Superintendent of Maryland General Hospital, Baltimore.

"Quantities to Purchase and Quotation Procedure," by James Best, Purchasing Agent, Cornell Medical Center, New York, N. Y. Maxima and minima; standard packages; economic conditions; geographical location; transportation facilities; budget limitations; legal limitations; open or closed bids.

Seminar.

Evening Conference

Round table discussion, led by Parker J. McMillin.

Wednesday, June 11

Morning Conference

Presiding Officer: E. Reid Caddy, Director of South Baltimore General Hospital.

"Receipt and Inspection," by Sidney Bergman, Superintendent of Sinai Hospital, Baltimore. Person responsible; quantity and quality; necessary forms; relation to purchasing records. Seminar.

"Grading of Canned Foods," by a representative of the U. S. Department of Agriculture, Agricultural Marketing Service, Canned Fruits and Vegetable Inspection Service. Government specifications; standard packages; government labeling requirements; private label canned foods.

Afternoon Conference

Presiding Officer: Parker J. McMillin. Practical demonstrations at Baltimore City Hospitals. Grading of Samples. (This will be an actual examination and scoring of samples submitted by vendors on a bona fide bid. A conclusion will be reached as to where the actual order is to be placed.) Preparation of Sterile Solutions.

Thursday, June 12

Morning Conference

Presiding Officer: Merrell E. Stout, M.D.

"Stores and Inventory Control," by Neal R. Johnson. Space required; facilities required; necessary records; perpetual inventory; issuance of supplies. Seminar.

Afternoon Conference

Presiding Officer: Miss Jane Nash, R.N., Superintendent of the Church Home and Infirmary, Baltimore.

"Invoices and Discounts," by J. Herbert Gaston, Purchasing Commissioner, City of Baltimore. Verification of invoices; cash and trade discounts. Seminar.

"Group Purchasing," by O. G. Sawyer, Purchasing Agent, Duke University (and Hospital), Durham, N. C. Seminar.

Evening Conference

Round table discussion led by Parker J. McMillin.

Friday, June 13

Morning Conference

Presiding Officer: Dr. John E. Savage, Acting Superintendent of University Hospital, Baltimore.

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"Commercial Law—Legal Aspects of Purchasing," by Dr. Leon Sachs, LL.B., Lecturer on Commercial Law, Johns Hopkins University.

"Economic Trends—Marketing," by Dr. Roy J. Bullock, Ph.D., Associate in Political Economy, Johns Hopkins University.

Afternoon Conference

Panel discussion of hospital commodities, led by Warren W. Irwin.

Evening

Informal dinner meeting. Presentation of certificates, by Winford H. Smith, M.D.

Saturday, June 14

Morning Conference

Round table review of the Institute, led by Arden E. Hardgrove.

Committee on Arrangements

Winford H. Smith, M.D., *Honorary Chairman*, Director of Johns Hopkins Hospital, Baltimore.

Neal R. Johnson, *Chairman*, Purchasing Agent of Johns Hopkins Hospital.

Parker J. McMillin, *Secretary*, Superintendent of Baltimore City Hospitals.

E. Maxwell Sauerwein, Assistant Treasurer and Business Manager of Johns Hopkins Hospital.

Sidney Bergman, Superintendent of Sinai Hospital, Baltimore.

Clyde D. Frost, M.D., Administrator of Union Memorial Hospital, Baltimore.

William H. Moreland, Administrator of West Baltimore General Hospital.

Committee on Purchasing

Arden E. Hardgrove, *Chairman*, Superintendent of Norton Memorial Infirmary, Louisville, Ky.

John Hornal, Purchasing Agent of Toronto Western Hospital, Toronto, Canada.

S. K. Hunt, Administrator of Grace Hospital, Morganton, N. C.

Warren W. Irwin, Purchasing Agent of Strong Memorial Hospital and University of Rochester, Rochester, N. Y.

Neal R. Johnson, Purchasing Agent of Johns Hopkins Hospital, Baltimore.

H. A. Munson, Purchasing Agent of the New England Sanitarium and Hospital, Stoneham, Mass.

O. G. Sawyer, Purchasing Agent of Duke University and Hospital, Durham, N. C.

Council on Administrative Practice

Graham L. Davis, *Chairman*, Consultant on Hospitals, W. K. Kellogg Foundation, Battle Creek, Mich.

Jessie J. Turnbull, Superintendent of Elizabeth Steel Magee Hospital, Pittsburgh, Penna.

John E. Gorrell, M.D., Administrator of Battle Creek Sanitarium, Battle Creek, Mich.

Arden E. Hardgrove, Superintendent of Norton Memorial Infirmary, Louisville, Ky.

Edgar C. Hayhow, Superintendent of Paterson General Hospital, Paterson, N. J.

Maurice H. Rees, M.D., Medical Director and Administrator of Colorado General Hospitals, Denver, Col.

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KNOWLEDGE OF PURCHASING

By C. F. SCHWEP

Vice President in Charge of Purchases
Ingersoll-Rand Co.

If I were asked to name the most important requirement of a Purchasing Agent, I should毫不犹豫ly say, "Specialized Knowledge" of the commodities and articles that he buys. This covers a wider field than many of you may realize. It means that you have to know about the origin of materials, where they are obtained, how they are mined, processed and manufactured. You should also know something about metallurgy, chemistry, engineering, designing, cost of production and distribution, as well as transportation.

We must, of course, include a thorough and intimate knowledge of market conditions and prices, and the law of supply and demand, for this influences and sometimes controls the fluctuations in prices and procurement.

A Purchasing Agent must be well informed about everything that he buys. It is expected of him, because he is regarded as a specialist on materials of every description that are used by his industry.

Everything comes from the earth. Our entire activity consists of conversion. Raw materials from underneath the surface, such as ore, coal, oil, etc., are transformed into iron, steel, non-ferrous metals, by-products and innumerable other substances used in industry. The more a Purchasing Agent knows about the chemical and physical properties of these materials and their applications for specific purposes, the more valuable he becomes to his employer.

The abnormal demand for materials for the defense program has created shortages of certain essentials, which may become serious. Every Purchasing Agent must realize that the demands of the Nation for the protection of our country, our homes, and our institutions, comes first. Government agencies can be assisted in this all-important task by cooperating to the fullest extent. Collectively and as individuals, Purchasing Agents can employ their talents and training towards attaining this objective.

Extract from an address before the Elmira Association of Purchasing Agents, March 27.

111

BUYERS SPONSOR TAX MEETING

The National Association of Purchasing Agents was one of the business organizations cooperating in the sponsorship of a public dinner and hearing on Federal Taxation, held at the Commodore Hotel, New York City, April 15th. Other bodies participating in the project were the National and New York Credit Men's Associations, American Institute of Accountants, Robert Morris Associates, and the Comptrollers' Institute of America. Representatives of government, business and labor were heard on the program.



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HANDBOOK OF INDUSTRIAL FABRICS

The third edition of the Handbook of Industrial Fabrics, completely revised and considerably enlarged, has been issued by Wellington Sears Co., 65 Worth Street, New York City. The importance and value of this work is evidenced by the fact that the second edition was completely exhausted within a period of two years from publication, and the opportunity has been taken to bring the entire work up to date, including a new section on the marketing of cotton in the United States, recent significant statistics regarding acreage yield and production, a series of new stroboscopic photographs illustrating the principles of ring spinning, descriptions and illustrations of new textile testing machines, and the like. The chapter on specifications and test methods now gives effect to the new A.S.T.M. specifications for textiles, as approved during 1940, and there is a 35-page bibliography of U. S. Government publications relating to textiles, based on research in the field of processing fibers, yarns, and fabrics, their industrial applications, and factors of economics, marketing and distribution. The handbook which is designed "for Engineers, Purchasing Agents and Salesmen," is by George B. Haven, in charge of Textile Research at the Massachusetts Institute of Technology, assisted by Dr. Robert M. Macy, recently of the U. S. Department of Agriculture and now economist for the Wellington Sears Co.



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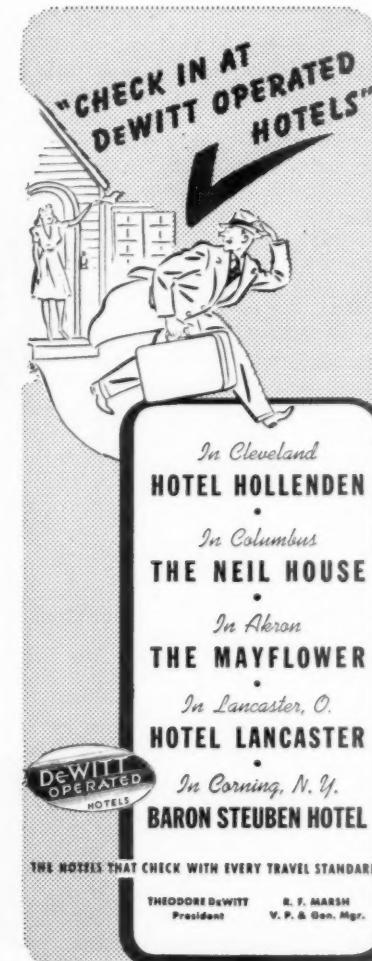
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1 1 1

ALUMINUM PLANT

Operations in its new \$800,000 aluminum and magnesium foundry and aluminum paint plant, were scheduled to start on May 1st, according to an announcement by officials of Aluminum Industries, Inc., Cincinnati, O.

This will be the first unit to be completed in the company's extensive building program, which will include, in addition to the foundry and paint plant, a large machine shop and an office building. All of the new buildings are being erected on a 35 acre site recently purchased by the company on Werk Road, Cincinnati, O.

The new foundry and paint plant, which has an area of 150,000 sq. ft., was designed and constructed by The Austin Company of Cleveland, O. It has modern functional lines and is of all-welded structural steel and face brick construction, with high continuous bands of sash on all sides. Four 50 ft. monitor bays with five intermediate 30 ft. bays, are provided in the structure. The plant is being completely equipped with all modern manufacturing and handling facilities.

The foundry with its estimated capacity of 2,225,000 pounds per month, will be devoted entirely to the production of magnesium and aluminum alloy castings of the sand, permanent mold and semi-permanent mold types, for aviation, automotive and other basic defense industries. Likewise, the enlarged capacity of the new paint plant will be required to meet the added demands of the defense industry for the company's Permite ready-mixed aluminum paints.

1 1 1

MACHINE TOOL EXPORTS ARE DOWN

During 1940, more than 40% of the machine tool industry's 600-million dollar output was exported. This year, with production estimated at 750 million dollars, or 25% ahead of 1940, export shipments have been drastically curtailed, and the bulk of output will be placed at the disposal of domestic industry. Shipments to Japan and Russia, both of which countries were large buyers last year, have practically ceased. Great Britain was our largest customer in 1940, taking some 130 million dollars worth of tools. Present shipments are at about half that rate, one important reason being that many tools ordered for British account are now being turned over to domestic manufacturers working on British orders.



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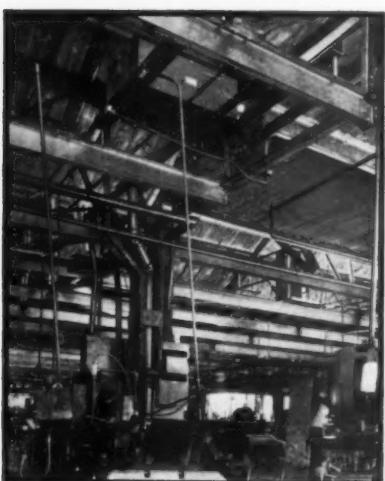
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installed up in the roof trusses on simple angle-iron frames. They are distributed in banks, one bank at each subpanel feeding a low power factor motor group; and are connected in the power circuit continuously.

Motor performance has noticeably improved since the capacitors were installed because voltage conditions at motor ends of the feeders are much steadier. Elimination of useless lagging, or wattless current has done away with current overloads on the feeders, and has made extra feeder capacity available for use when needed.

MACHINE TRANSCRIBING DESK

■ **Where volume** dictation justifies dictating machines this metal transcribing desk offers new and compact advantages over the conventional stenographic desk. The center is cut well back and provides room for both the typewriter and the dictating machine. An auxiliary top drawer replaces the usual disappearing shelf and is divided for efficient keeping of clips, pins, telegraph blanks and small stenographic accessories. Each drawer is designed for the handling of all items needed by the machine transcriber. Designed and built by The General Fireproofing Company, Youngstown, Ohio.



■ **Capacitors** have cut power costs upwards of three-hundred and fifteen dollars per month and raised operating power factor from 69 to 95 per cent for the National Acme Company, one of Cleveland's leading machine tool builders. The 720 kva of Westinghouse capacitors, based on present operation, will completely pay for themselves in eighteen months.

Because floor space is extremely valuable, the capacitors were

HAND LIFT TRUCK

■ **Bringing Archimedes's** principle of the lever and fulcrum up-to-date and usable in the handling of 3,500 lb. loads for all industry, the engineers of The Yale & Towne Manufacturing Company, Philadelphia, Pa., announce an improved hand lift truck with simplified lift.

This single stroke lift should gain for the already world-popular "Red Streak" hand lift truck, a new and increased circle of enthusiastic users. Re-designed for utmost efficiency, the lift mechanism has fewer moving parts and incorporates safety features to prevent tripping and "flying handle." Details of this compound (articulating) lift mechanism that changes the lifting ratio, flattens the lift curve and requires less lifting effort, are illustrated.

Another feature is its balanced handle which is entirely new. The hand-grip is larger in diameter to afford better grip, is satin-smooth and chrome-finished to make it easier on the operator's hands. The hand grip, tubular handle shaft, and lower handle casting, are welded into a single unit to keep parts from working loose.

BALL AND ROLLER BEARING GREASES

■ **Gulf Oil** Corporation, Pittsburgh, Pa., has developed two new lines of lubricating greases for ball and roller bearings, which are backed by a number of years of concentrated research by their technologists.

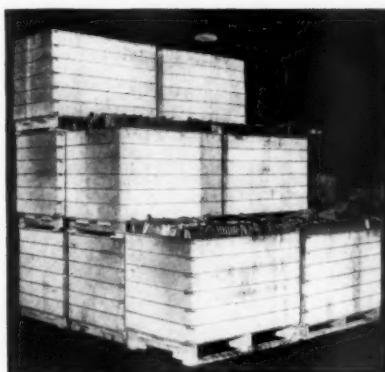
One, designated anti-friction grease, is recommended for heavy duty service. The other, precision grease, is recommended for lighter duty and higher speeds. Both have a high melting point and are specially prepared for greatest resistance to oxidation and separation.

Their newly developed method of compounding, employing special high pressure kettles and mixing methods, produces these greases with a relatively smooth, non-fibrous texture, which gives a true picture of their consistency.

Both of these lubricants are available in a wide range of consistencies for any method of application or operation condition—consistencies recently recommended by the National Lubricating Grease Institute.



SHIPPING CONTAINER



duced.

Two containers can be placed, side by side, in the width of a standard railroad freight car. In addition to its moderate cost, the container provides other important advantages: ease of packing at the source, ease of loading into cars, and ease of unloading at the other end.

Handling for the receiver, too, is simplified. The load is kept in the box, moved to the proper assembly point where parts can be handled directly from the box. Many of the customary handling and storing operations and costs are eliminated.

The container can be made in any range of sizes and in any number of styles. One of the large boxes constructed has a capacity of 25 cubic feet and can contain a load of about 2300 pounds.

CYLINDER TRUCK

■ A hand truck designed to carry an oxygen cylinder, an acetylene cylinder and a complete welding and cutting outfit, has been placed on the market by The Linde Air Products Company, a unit of Union Carbide and Carbon Corporation, New York, N. Y.

This truck is light in weight, well balanced, and has 14-in. wheels equipped with semi-pneumatic rubber tires. It weighs considerably less than the former all steel-wheeled trucks which it replaces.

These features make the truck exceptionally easy to maneuver. It is easier to handle over rough places than trucks with even larger-diameter wheels. The new design results in a 4½-in. reduction in overall width of the truck, permitting passage through narrower openings. As an added feature, the size of the removable metal tool box, for extra blowpipes, tips, goggles, and wrenches, has been increased.



SPRAY-ON PLASTIC CORK

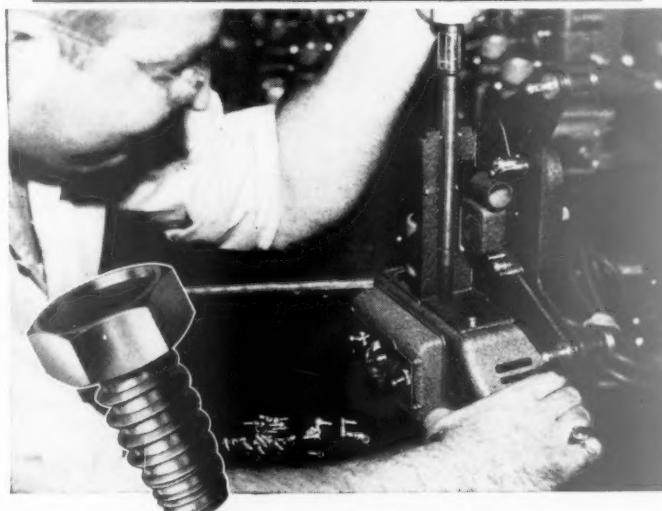
■ Weather and temperature changes can play some queer pranks, but none is more costly than condensation collecting on ceilings and side walls of freight cars, transport trucks, cargo ships, in storage houses, air ducts, water pipes in basements, etc.

Damage from sweating or dripping water on raw materials, food products, furniture and other merchandise that must be shipped from place to place or kept in storage awaiting disposal, runs into high figures every year.

There has been developed in the plant of the J. W. Mortell Company, Kankakee, Ill., a well known industrial paint manufacturer, a new product called Insulmat No. 595. It is a

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**Parker-Kalon Self-tapping Screws help keep
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Outstanding for production efficiency, the Universal Camera Corporation, Manufacturers of Univex Cameras, cannot afford to take chances on sacrificing quality or hindering production with "doubtful screws" . . . screws that look okay but of which a percentage fail in use. That is why, when it comes to Self-tapping Screws, this manufacturer, and so many thousands of other concerns, insist on Parker-Kalon.

Parker-Kalon Screws are products of more than 25 years' experience in Self-tapping Screw manufacture . . . Quality-Controlled by the famous Parker-Kalon Laboratory . . . your assurance of unfailing performance. Mail coupon for samples . . . try them . . . see for yourself! Parker-Kalon Corporation, 202-204 Varick St., N. Y.



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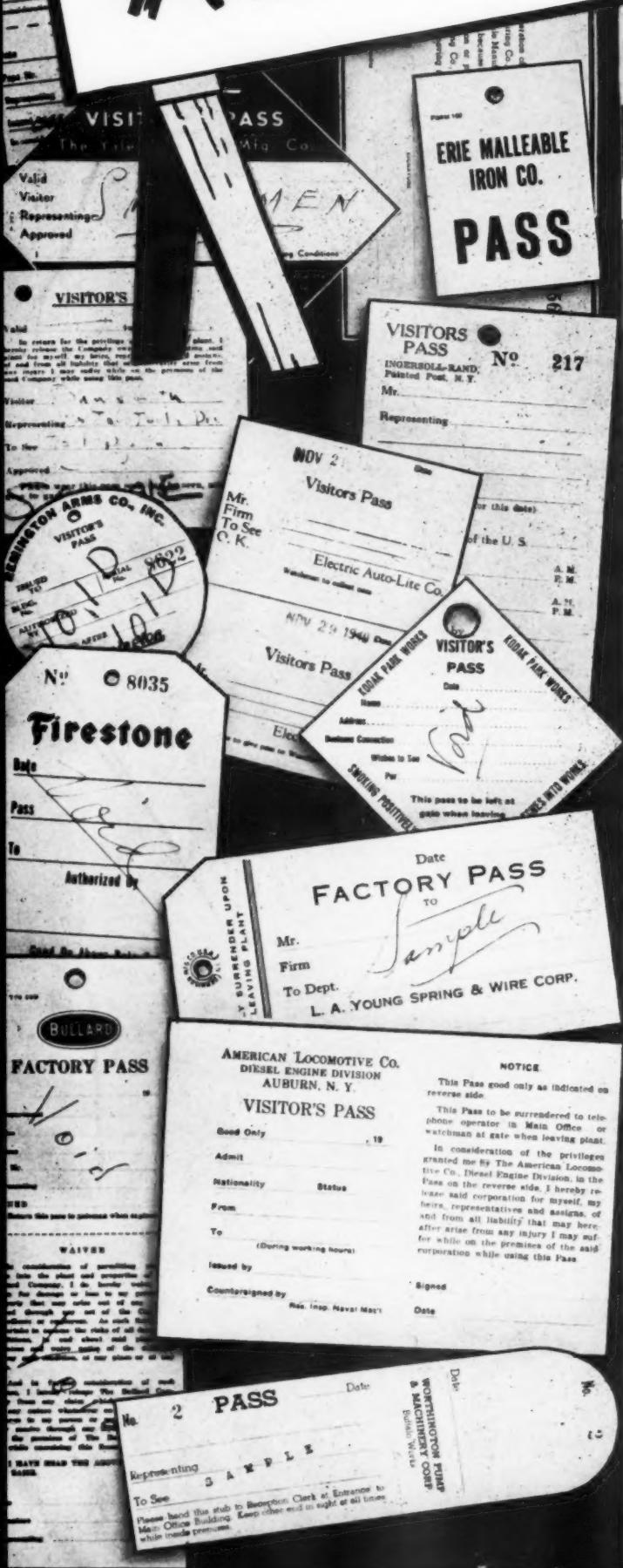
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*Self-tapping
Screws*

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Please send us Free Samples of Self-tapping Screws.

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KEEP OUT!



Wherever sales and advertising managers meet these days, one topic of conversation almost invariably comes to the front: The difficulty salesmen are having today, in getting into plants.

"Passes are needed in practically every plant nowadays."

"Yes, and sometimes they send a guide along."

"And plenty of places, salesmen can't get in at all!"

The back door and the by-pass are closed. And the Purchasing office has become the first and most important point of contact.

That's why it's important to parallel your advertising and selling efforts. Sell Purchasing Executives on the merits of your products - in their only national magazine. A regular schedule in PURCHASING will do it! Purchasing, 205 East 42nd Street, New York; 333 North Michigan Avenue, Chicago; Leader Bldg., Cleveland.



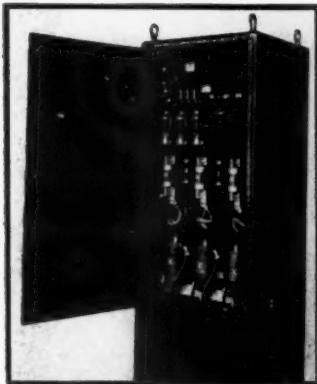
A Conover-Mast Publication

spray-on plastic compound, containing especially treated cork particles, which is guaranteed to absolutely eliminate condensation drip.

It is self-bonding, requires no priming coat, adhesive or supports, and can be applied to any metal surface. Gives positive protection at lowest cost, there is no upkeep and it is said to last as long as the metal to which it is applied.

At Purdue University, this compound has been subjected to intensive vibration and other severe tests under various conditions and has been found to possess unusual adhesion, to be odorless, and to form a valuable protective coating to metals.

IGNITRON SPOT WELDING RECTIFIER



■ **Designed especially** for supplying required d.c. current to magnetic energy-storage type spot welders such as are used for joining aluminum in the aircraft industry, a new ignitron spot welding rectifier is announced by the Westinghouse Electric and Manufacturing Company. These rectifiers are available in two capacities, one for use with 40 kw, the other for 120 kw spot welders. Each rectifier will operate two welders if they are sequenced so that only one

can be loaded onto the rectifier at a time.

The rectifier consists of a control and protective panel, power transformer and ignitron power tubes all contained in a forced ventilated floor mounted sheet metal cabinet with a heavy welded base frame. Tubes are arranged for water cooling, and cooling is controlled by a thermostatic water flow switch. The control and protective panel is located in the top of the cabinet and the ignitron assembly in the bottom. Hinged doors provide access to the front of the cabinet and the back is removable for maintenance. A 14-inch fan, driven by a $\frac{1}{6}$ -hp motor cools the transformer, exhausting through a grill at the rear of the cabinet.

"SHORTCUT" BLUEPRINT READING METHOD

■ **A totally new** and greatly simplified home study method of instruction in reading blueprints of all kinds is announced by Austin Technical Institute of Newark, N. J., who invites inquiries from industrial organizations interested.

The home study method was devised primarily to speed the instruction of workers in industry, particularly those concerned with defense production. Its purpose is to make employees immeasurably more useful to their employers and their country, while improving their earning power and safeguarding their economic future.

The system is infinitely easier to grasp by average non-technical minds, but fully as effective in practical application as similar instruction acquired "the hard way" at a technical school. Both the cost and the time required are only a fraction of any of the former methods of blueprint reading instruction.

The "Shadowgraph" method blueprint instruction is based upon use of actual working models of objects, and projections of shapes and dimensions as shadows are thrown by the sun



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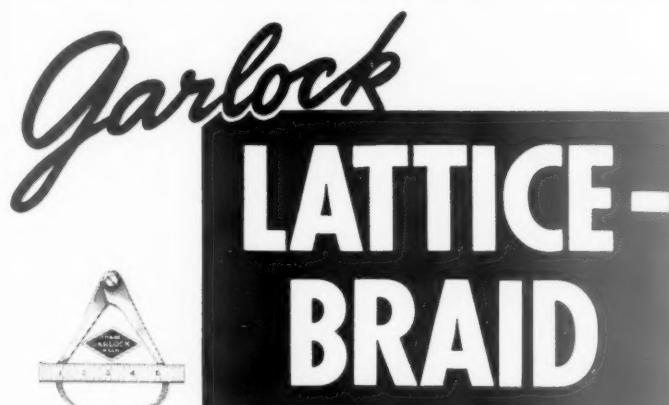
Since it was introduced several months ago the new Garlock LATTICE-BRAID Packing has proved itself by superior performance on many types of service.

LONGER LIFE The unique structural design of LATTICE-BRAID holds strands together (even when the material is worn far beyond the serviceable limits of wear of ordinary braided packings), provides unusual flexibility and imparts semi-automatic pressure action.

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WELDING WIRE Either bare or coated rod for all grades of steel including Stainless equal to the metal you weld. For flat fillet, horizontal, vertical or overhead welding. Ask your local Page Distributor for literature and recommendations.

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or other single source of light. The student receives as part of the course a model containing actual blueprints.

Thorough tests of the course show that anyone who can read English, without any technical pre-training, can become an efficient reader of any type of mechanical or industrial blueprint in a remarkably short time. An important claim made for the course also is that the "studying" is so simple and clear, and the illustrations so clearly explained, that the practical workman's dread of wading through dull and perplexing text matter is almost wholly removed.

STEEL STOOLS

■ A complete line of steel stools has been introduced by Lyon Metal Products, Incorporated, Aurora, Ill. This line includes seven heights, from 18 inches to 30 inches in multiples of two inches, and there are 112 models available.

The 112 models are built around an all-welded basic stool with forged steel, dome shaped feet and steel seat. To this stool may be added a pressed wood seat; adjustable steel back; rubber feet; rubber feet with steel glides, or casters.

Most important of the features are (1) the all-welded, non-breakable construction, (2) unusually large seat area—187 square inches on all heights, (3) strong channel brace-foot rest a uniform distance below seat on all heights, (4) round edge, steel band construction with no rough edges to snag or tear clothing, (5) tapered legs that insure safety against tipping.

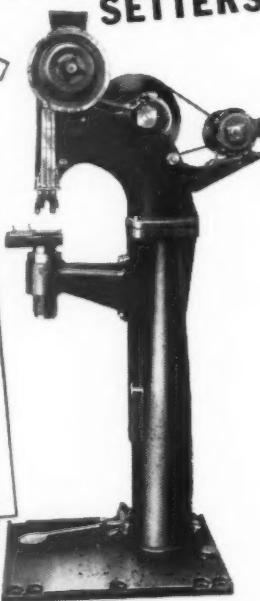


For SPEED CHICAGO MULTIPLE RIVET SETTERS

TODAY speed counts... speed that gets rush orders out on time . . . speed that keeps a plant operating at top efficiency.

A sure way to step up assembly output is to use Chicago Rivets and automatic multiple rivet setting machines. Set up to four rivets at a single machine stroke . . . and set them cleanly and firmly without harming the finish. You will save money too, for Chicago PRECISION RIVETS and machines are industry's most economical combination.

Send a sketch or blueprint or, better yet, a sample assembly, for a thorough production analysis. Let us show you all the facts about multiple rivet-setting.



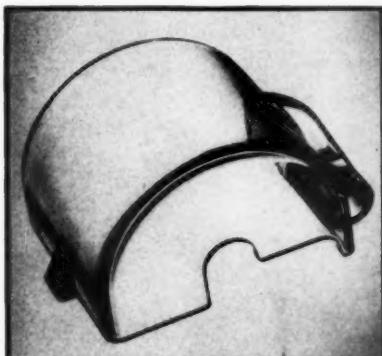
Chicago RIVET AND MACHINE CO.
1851 South 54th Ave. (Cicero, Ill.) Chicago, Ill.

TUBULAR AND SPLIT RIVETS IN ALL RIVET METALS
AUTOMATIC AND MANUAL RIVET SETTING MACHINES

and (6) all accessories are interchangeable and may be attached at any time.

The wide range of heights and accessory equipment make the stools suitable for every industrial or commercial use. Steel construction and high grade baked enamel finish assure long life and continued attractive appearance.

PLASTICS SAFETY GUARD



■ The first installation has been made in General Electric's lamp factory at Nela Park, Cleveland, Ohio of a plastics safety guard which their plastics department believes can be adapted to a wide variety of applications. The safety guard now in use on a coil winding machine replaces a guard formerly made

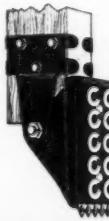
of aluminum with a small glass window to enable the operator to watch the operation. The new plastics guard is transparent, making it possible for the operator to watch the entire operation where formerly he could see only a part of it through the small window. It is made of methyl methacrylate plastics, weighs about half as much as the 3-pound metal and glass guard which it replaces. A further advantage of the plastics guard is that it is made all in one piece. Its predecessor involved an assembly of the metal piece and glass window.



Dayton Safety Ladders eliminate the expensive delays caused by the hazards of ordinary ladders. Men work faster, with more confidence, on the broad, firm platforms of Dayton's. Ample room for tools and supplies. Rigid steel supports, tested airplane spruce give Dayton Safety Ladders great strength, stability, and extreme lightness of weight. Standard Rubber Safety Shoes at no extra cost.

INSTALL DAYTON UNIVERSAL SAFETY LADDER SHOES

Install these safety shoes on your present straight ladders—guarantee additional safety. This Dayton Universal Safety Shoe prevents slipping. Your choice of renewable treads including Rubber Suction Grip Treads, Neoprene Suction Grip Treads, or Suberae Cork Treads. Shoe is instantly converted by a flip of the hand or foot for either inside use of treads or outdoor use of tempered steel spike toe.



As Safe as Standing on the Floor

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DAYTON
Safety Ladder
Co.

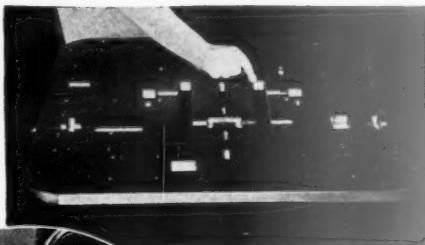
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Cincinnati
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These remarkable band saws, first developed for the famous DoAll Contour Machine, are now available for use on all metal cutting band saws. For every sawing job, including such hard ones as Cold rolled nickel, ductile aluminum alloy, laminated low carbon steel sheets, neoprene, etc. Below are three tough jobs done at Swanson Tool & Machine Company, Erie, Pa.

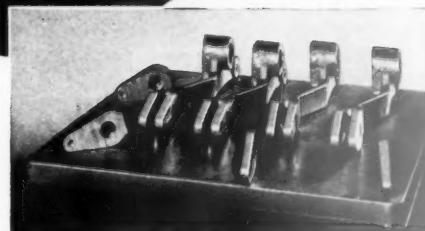
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DoAll Saws Come in Special Metal Boxes

For safe, easier handling and storing, DoAll Precision Band Saws are packed in modern metal boxes, with window to show how much saw remains in each box.

FREE TEST

Let our Saw Testing Laboratory experiment with any tough metal cutting job you have, and show you the most efficient and economical way to handle it.

Send for booklet Actual Performance Records of DoAll Saws.

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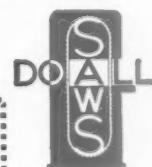
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INFORM-A-SHOW, Chicago, May 26 to 29

NATIONAL BLANK BOOK CO.
HOLYOKE, MASS.



■ A material handling machine which reduces the cost of handling loose materials and has particularly important applications in foundries, chemical, fertilizer and similar plants has been developed by Clark Tractor Division of Clark Equipment Co., Battle Creek,

Mich. It is shown here operating in the foundry of Benton Harbor Malleable Industries, Benton Harbor, Mich., handling molding sand.

Built on a three-wheeled chassis, rear wheel steer, it is powered with a 4-cyl. motor and is capable of 24-hr. continuous operation. The heavy steel scoop picks its load of loose or semi-hard material from the pile without ramming it.

The machine carries the load of 1500 lbs., bulking as much as 18 cu. ft., at from 3½ to 11 m.p.h., elevates it in less than 10 sec., dumps it into carts, trucks or bins. One model has 45 in. under-clearance when dumped, another, 65 in. Driver controls all operations without dismounting.

POWER SHOVEL



FLUORESCENT FIXTURES

■ An interesting development today in the field of fluorescent lighting is the introduction of "Surface Mounting" fixtures that can be used effectively for low ceiling interiors and also to improve arrangement and add variety to installations that include suspension type fixtures. Anticipating this demand,

Here . . .

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Here, within the covers of this 72 page catalog, is an extensive range of modern protective equipment, practically designed and carefully made for wide industrial use.

A copy in your permanent file will be of invaluable assistance in solving your safety problems.

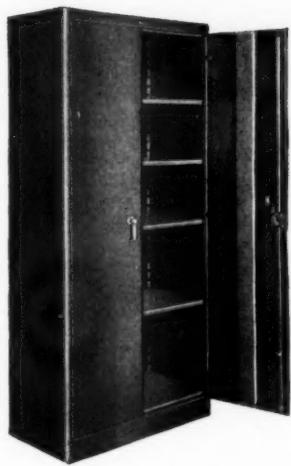
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SELLSTROM MANUFACTURING COMPANY
642 N. Aberdeen St. **Chicago, Ill.**

**INSIST ON SELLSTROM
. . . THERE IS NO BETTER**

the Mitchell Manufacturing Company of Chicago has announced two popular priced fluorescent fixtures designed specifically for this purpose. Model No. 2029 is an open type unit employing two 40-watt 48" Mazda lamp bulbs; Model No. 2030, also open type, uses four 40-watt bulbs. Efficiency, beauty and eye-comfort have been combined in both units. Both bear the Fleur-O-Lier and Underwriters' Laboratories labels, certifying that they have passed a minimum of 50 rigid performance specifications for electrical, mechanical and illuminating superiority. They have standard approved ballasts, starters and sockets and are Power Factor and Stroboscopic (flicker) corrected.

STORAGE CABINET



no exposed bolt heads on the front or sides. The surfaces are smooth and sleek to emphasize modern design. More

■ A noteworthy advance in the design of storage and wardrobe cabinets has been incorporated in their cabinet line, just placed on the market by Lyon Metal Products, Incorporated, Aurora, Ill. The line includes both double-door and single-door storage, wardrobe, and combination cabinets, and desk-hi, counter-hi, and janitor's cabinets.

The outstanding new feature of the cabinets is the streamlined, round-corner construction.

Other features of the cabinets include: Safety; there are no sharp corners or edges to catch clothing or cause accidents. Smoothness; there are



Short, stubby links bridge the corners...without gouging and bending stress



Herc-Alloy Steel Chain with the exclusive patented "Inswell" welds is proving its superiority in every type of application. Fabricated from a special analysis, heat treated steel, the sturdy short, stubby links bridge square corners (see photograph above) minimizing bending stress and gouging... adding extra chain life and economy even under the most punishing assignments.



25% extra margin of safety and wear

Note the extra "swell" of steel at the weld of Herc-Alloy steel chain. With 25% extra metal at the point where strength is vital, these "Inswell" welded links give extra safety to men and materials... and longer chain life. Specify and insist on Herc-Alloy—it's your assurance of extra dependability, economy and safety.

Whether or not you need chain today...get the facts. Complete catalog on request and trained CM engineers are available for consultation. Write:

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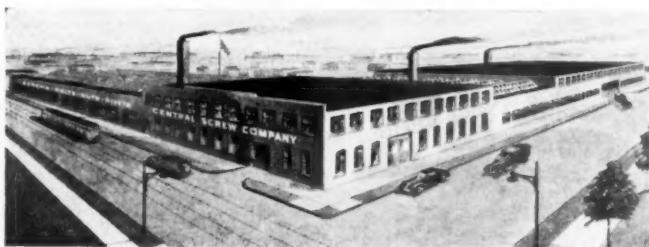
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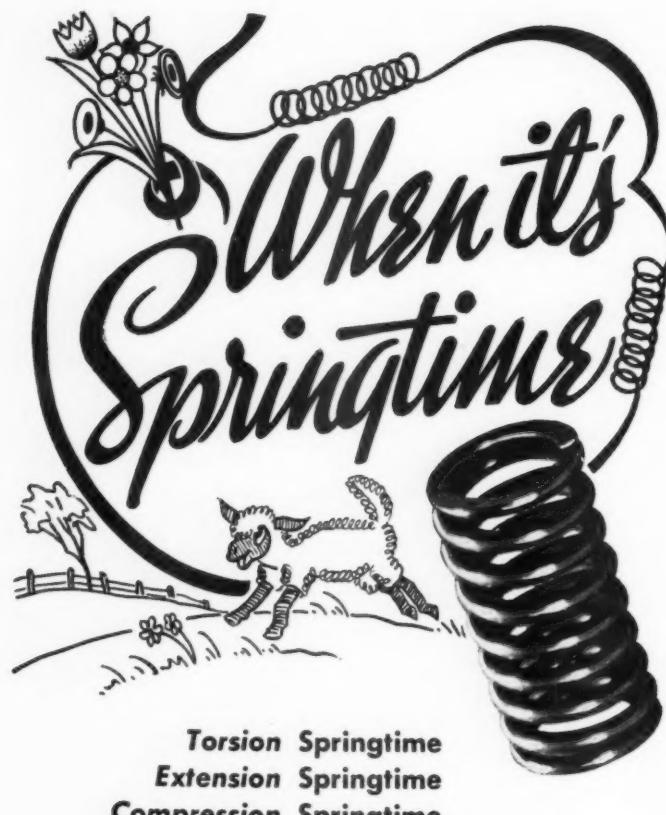
★ Here, at Central Screw Company, speed with precision characterizes every operation in the production of standard Screws—Bolts—Nuts—Rivets and special products.

From the careful selection of the most suitable raw materials, through the various machine and heat-treating operations to the final inspection of the finished product, *precision* is the watchword at Central.

Precision of the visible and measurable *plus* alertness to all factors that effect savings of time and materials on assembly lines—these are the elements that cement closer relationships between our customers and the Central organization.

Add to these, Central's ever-improving methods that move toward greater economy with improved quality. Add quick service. In a word, you can *depend* on Central.

CENTRAL SCREW COMPANY 3515 SHIELDS AVE.,
CHICAGO, ILLINOIS



**Torsion Springtime
Extension Springtime
Compression Springtime**

WHEN the time comes for you to buy springs, give thought to the quality and service you can get from Accurate. Whether the spring you need is the tiniest hair-like coil or a stout steel brute for slam-bang service, you'll find that Accurate controls and checks quality to the "nth" degree. Accurate builds dependability into its products to help you build it into yours. Accurate takes more than ordinary measures to meet delivery dates to help you meet yours. This care is building business for Accurate. It will help do the same for you. Let Accurate meet your next spring requirements — write today.

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peared in May 1940.
Because Accurate's message
to spring users is still the
same, it is reprinted here
in this Springtime
of 1941.

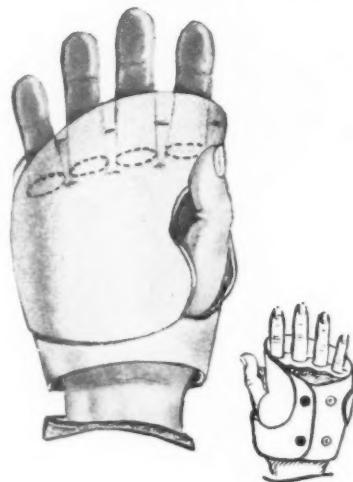
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3825 W. LAKE ST. • CHICAGO, ILL.

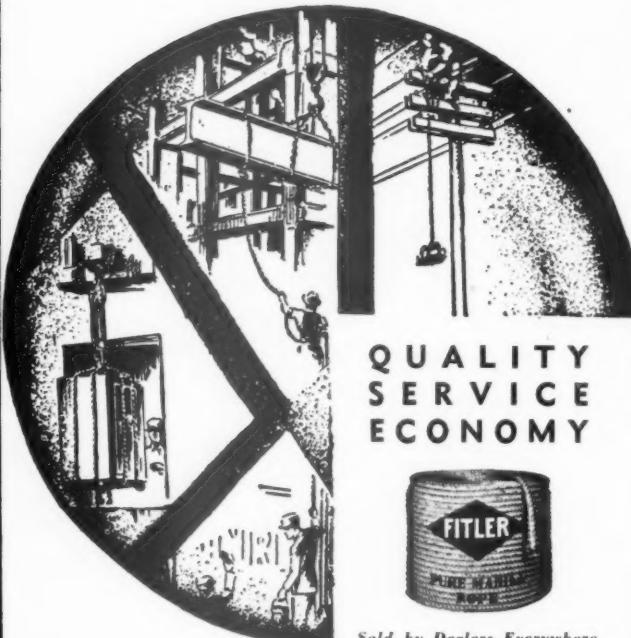
capacity; the closed bases are only 4½" high, and provide more cabinet capacity. The doors swing open 180 degrees, which allows full capacity width for storage. Tubular frame: The rounded front edges are formed from the side sheets flanged back to provide a strong tubular shaped door frame. Shelf reinforcement; an easily attached shelf reinforcement unit is available as an extra. It increases the load capacity of the shelf by 75%. Hand adjustable shelves: All storage shelves are hand adjustable every two inches.

FINGERLESS HANDGUARD

■ A chrome leather fingerless handguard has been designed by the Industrial Gloves Company of Danville, Ill., specifically for the use of "bundlers" in the handling of corrugated sheets and cases. With an extra leather patch over the palm section, the guard fits snugly but gives absolute freedom and flexibility for picking up, catching or handling thin materials. Made in three sizes with adjustable snap buttons for fastening at the back — small for women operators, and medium and large for men. May be had in pairs, or for left or right hand only as required. The guard also has wide application not only in the paper industries but in all industries wherever protection is required for palm only, with fingers and thumb left free.



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PRESENTATION OF INKS



■ There are so many kinds of special inks of importance to shipping and business offices and the dealers who supply them, that Fulton Specialty Company, New York City, has devised a highly convenient method of presenting such products.

A neat wood cabinet has been specially designed to contain one display bottle of

each of the most-wanted "special", such as Property Marking, Opaque, Celwax and Kwik-Lac. In the hood of this little chest is printed a concise description of what the ink is and does—listing the colors that are available in each variety.

There is also an ingenious wood guard, imprinted with prices, so that the dealer can save time even here—the customer knows how much, as soon as the kind of ink is selected.

TEMPERATURE RELAY

■ An improved temperature relay designated Type CFT has been announced by the General Electric Company for protection of machines and transformers against overloading. The CFT embodies the induction-cylinder design, and supersedes the Type ICT induction-disk relay.

No change has been made in the circuit, and the improved relay still serves as the galvanometer in a Wheatstone bridge circuit comprising a resistance temperature detector in one arm and tapped bridge resistors in the other three arms.

In this application, the normal operating region of the relay is, of necessity, close to the pickup point. Consequently, the

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SPECIAL HEADED AND
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We specialize in the design and production of made-to-order fastening devices requiring special heads, threads, finishes or supplementary operations, in any metal or alloy adapted to the cold-upset process. Parts such as those illustrated, and countless others result from a combination of the most modern equipment and a highly efficient personnel backed by 40 years of experience specializing in "specials". Submit samples or outline ideas for our figures, promptly given without obligation.

PROGRESSIVE is also prepared to supply all the standard machine screws, stove bolts and nuts. Rivets and studs on special order only. Catalog on request. Address:

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THEN, with scientific control from raw stock to finished part we will be able to guarantee you the *precise FELT* you want. You will be taking the guess out of your *FELT-buying*. You have our assurance that we will deliver Cut Parts, exact as to measurements and *all other specifications*, in accordance with your delivery and production schedules. Uniformity is guaranteed on repeat orders. At Detroit, Mich., and at Port Chester, N. Y., we have modern cutting shops, manned and managed by men who *know FELT* and felt cutting. Please write for Data Sheets, factual and helpful.

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PRODUCERS OF FINEST QUALITY PARTS FOR OIL RETAINERS, GREASE RETAINERS, WICKS, DUST EXCLUDERS, GASKETS, INSULATING FELTS, CHANNEL FELTS, UPHOLSTERY RISER STRIPS, BODY SILENCING PARTS, DOOR MECHANISM GASKETS, AND BODY POLISHING WHEELS

high-torque characteristic of the induction-cylinder feature provides more dependable and more consistent protection.

The usual adjustment of this relay will be the same as that of the previous type.

With a given adjustment, the relay is affected very little by ordinary variations in the voltage supplied to the bridge circuit. For example, the high-temperature contact will make within plus or minus 1 per cent of the same temperature for a supply voltage of 80 per cent to 110 per cent of rated voltage.

SYNTHETIC THERMOPLASTIC MATERIAL

■ The development of a method of processing Koroseal—the synthetic thermoplastic material—into a transparent and highly durable film with wide industrial application, has been developed by the B. F. Goodrich Co., Akron, Ohio.

The film development is the seventh major product field invaded by Koroseal, the synthetic created from limestone, coke and salt, and climaxes five years of intensive experimentation.

This film is resistant to outside exposure—sun, oxygen and extremes and changes of temperature. In addition, it is extremely water and moisture-resistant.

Glass-clear and highly flexible, the film is now being produced in gauges ranging from one-thousandth of an inch and up. It is made in a variety of colors in transparent, semi-



PORTABILITY makes a

Yes, and a direct hit, too . . . right in the area of convenience! There never was a more adaptable pencil sharpener than Boston's Silver Comet. It's light yet sturdy; it moves to YOU, beds down comfortably on any surface and gives you Boston's precision sharpening all the time, anywhere. You—and every user in your organization—will agree that this is Boston's portable masterpiece—a sensation in pencil sharpeners!



List \$3.50

The Silver Comet gives you Boston's famous speed cutters—all 15 of them—plus a point adjuster which produces fine, standard or semi-blunt points as you desire. Base is all metal in black and chrome finish. Specify Boston's Silver Comet to fill your pencil-sharpening needs!

C. HOWARD HUNT PEN CO. • CAMDEN, N. J.

BOSTON PENCIL SHARPENERS

transparent, translucent and opaque forms, the announcement said.

While the chief uses of the film are in waterproofing and packaging materials, its chemical inertness, flame resistance, and electrical properties make it valuable for laminating chemical containers for holding acids and corrosives and for insulating fine electric wire and cable.

RESPIRATOR



the respirator.

Operating features include a specially designed metal filter box that guards replaceable filters, with an overall filtering area of approximately 40 sq. inches to promote easier breathing. Newly designed exhale valve incorporates a speaking diaphragm to permit a normal exchange of conversation.

This functions with a high degree of efficiency against all common dusts, making it unnecessary to change filters under average conditions.

CHICAGO MOUNTED WHEELS OF V/T SUPER BOND



150% LONGER LIFE

Rigid tests on snagging and exacting operations prove they have 150% to 300% longer life. Won't ridge on welds, sharp corners, sinking dies, barbering, etc.

There's a shape and size to handle every grinding job faster, better, at lower cost.

V/T Super Bond is the most important development in mounted wheels in 30 years.

Let us send you a trial Wheel. Tell us the kind of job, type of equipment you use and size wheel you prefer.

FREE MOUNTED WHEEL CHART—Ideal for ready shop reference. A wall Chart 22" x 15" showing actual size and shape of every standard Chicago Mounted Wheel.

Handee Tool of 1001 Uses

A small "power house" that can be used wherever there is an electric outlet. Grinds, drills, polishes, cuts, routs, carves, sands, saws, sharpens, engraves, cleans, etc. Uses 300 accessories. Weighs 12 oz. 25,000 r.p.m. \$18.50 postpaid with 7 accessories.

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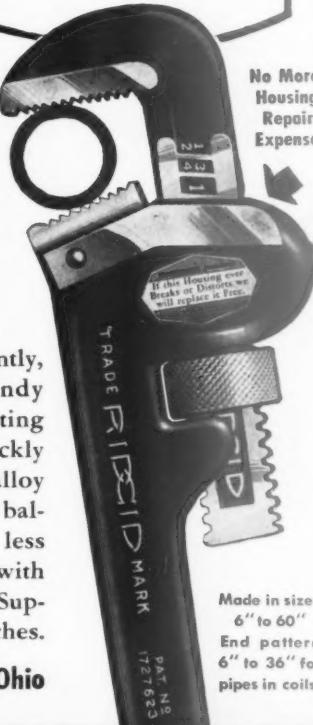
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PIPE WRENCH

*That housing won't break down
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MILLIONS of RIDID Wrenches are doing their share to speed vital work this year... However tough the job you give the RIDID, that guaranteed housing can take it—no time out, you need fewer spares. Safe chrome molybdenum jaws grip and let go instantly, are easily replaceable. Handy pipe scale on hookjaw, adjusting nut in open housing spins quickly to pipe size. Comfort-grip alloy I-beam handle and efficient balance of whole tool means less fatigue. Get more work done, with less tool expense—ask your Supply House for RIDID Wrenches.

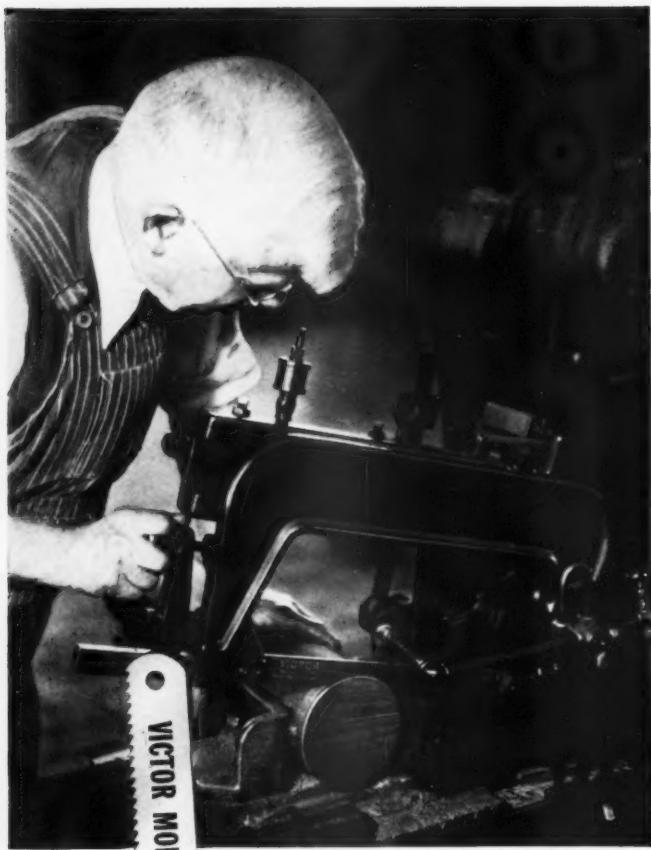
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Expense

Made in sizes
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1018 MOLY

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When you purchase VICTOR Hack Saw Blades, you can be sure that they will cut better and last longer. There are VICTOR Blades for every job.

VICTOR Frames are also available in four types — strongly built and finely finished.

Buy your blades and frames from one reliable source.

NEW—the VICTOR Unbreakable Special Flexible Blade! New in flexibility, new in steel, new in temper, new in finish. Be sure to get the blade with the all-over BLACK protective coating and which has clear size and teeth marking stamped in yellow on every blade.



101

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DOUBLED-EDGED HACK SAW

■ Two cutting edges on a single hack saw blade are now a reality in this double-life blade, developed by Millers Falls Company, Greenfield, Mass.

Obstacles which have prevented the successful manufacture of such a blade until now have been the set of hack saw teeth, which makes it difficult to keep the trailing edge from dragging in the slot, and the excessively high cost of breakage.

The manufacturer has solved both these problems—avoiding drag by setting teeth of the first edge fractionally wider than those of the second, and eliminating breakage by an advancement in heat treating technique which leaves teeth hard and ends and center soft. The blades are guaranteed unbreakable and shatterproof. Positive feeds at twice the usual maximum depth of cut do not impair their cutting efficiency.

It costs only 50% more than the single edge type and does twice as much work per blade, at a cutting speed twice the usual maximum. This cash and time saving, together with the safety and delay-proof production made possible by the blade's unbreakability, means much to America, especially at this time when the metal working industries are being pushed to capacity.



DEVICE FOR HEATING BEARING CONES

■ A novel method has been developed for heating bearing cones preparatory to assembling them on shafts where a tight press fit is required.

This device consists of three trays about 4' square, approximately 12" above each other. The middle tray is of pyrex

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SHOP NOISE
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The Loudest All Electric Horn

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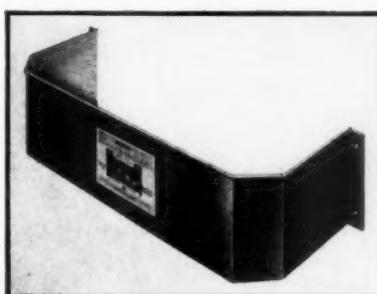
Chicago, Ill.

glass while the top and bottom trays each carry seven 250-Watt special infra-red ray bulbs. The reflectors on these special bulbs are gold-plated.

Bearing cones are not taken out of the boxes but are stacked in their containers. About 20 minutes are required to heat a bearing up to a maximum of 155° F. The infra-red rays penetrate the boxes, heat the steel, but leave the cardboard relatively cold.

When this method of heating is used, it is not necessary to wash off the protective coating which is put on the bearings at the time of packing. Timken Roller Bearing Co., Canton, Ohio.

WINDOW WELL



■ An announcement has been made by the Majestic Company of Huntington, Indiana of a revolutionary design of window well. It is made of heavy gauge steel and reinforced by a steel rod welded to the top edge. Tests show the design to have many advantages. The smooth inside surface

reflects the light, does not so readily streak with dirt and become unsightly. Also the fill around the well does not have a tendency to pull the well away from the foundation, as is the case in the corrugated types.

Another unique feature is the 20-year guarantee that it carries. A registration blank is attached to each well. If the owner of the premises will sign and return this registration form to the company, he will have a guarantee of a replace-



A psycho-analyst might find some hidden meaning in the above * maze of lines — perhaps a desire to travel or fly kites — but we don't get any sense out of it until the line ends up with Micro-Weave All American Tracing Cloth — and that does mean something very definite. It is easy to say "Best", but not so easy to be best. We are not making any "best" claims for Micro-Weave — just asking you to try it and judge for yourself.

* another in the series of actual "Doodle" drawings found on the edges of drafting room tested sheets of tracing cloth.

THE HOLLISTON MILLS, Inc., Norwood, Mass.
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Appreciated wherever wood fasteners are used for their heat-treated toughness. Sharp lag threads for fast sinking; true-squared carriage heads for snug fitting. Both types made of excellent quality wire. Packed as you want them—in packages, kegs or boxes.

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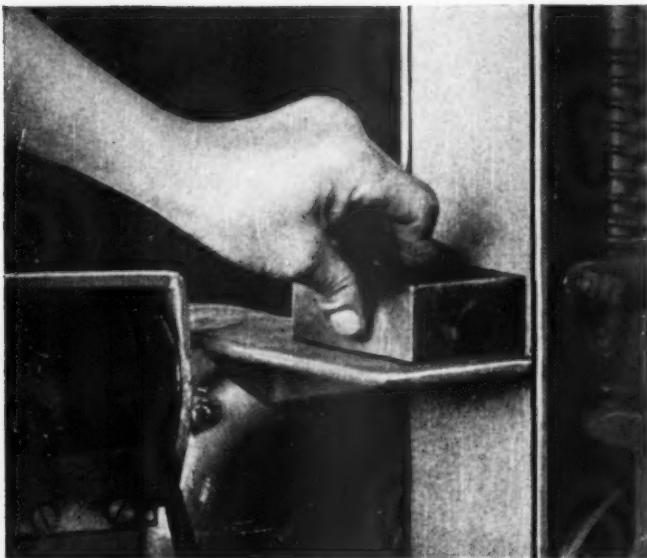


Illustration courtesy Production Machine Co.

What Coated Abrasive Leads in Cutting Power? **CLOVER**, of Course!

Your machinist's knowing hands will quickly detect what other experienced users of Clover Coated Abrasives have known all along, — that grain for grain, Clover leads in sanding power! And why shouldn't it? Each tough-bodied grain is firmly embedded in the bond, business-end up for maximum cutting efficiency. The Clover coat is *all teeth*, — no "lazy" grains to result in dull, listless sanding effort.

**TELL US YOUR TOUGHEST COATED ABRASIVE PROBLEM . . .
WE CAN HELP YOU!**

Clover Abrasive Advisory Service is ready to help you, and make recommendations that will put your production on a profitable basis. Write DEPT. K for details. Ask also for informative Abrasive Manual, and for our free trial offer.

CLOVER MFG. CO., NORWALK, CONNECTICUT

**ASK, ALSO, ABOUT CLOVER GRINDING AND LAPING COMPOUND
— FAMOUS FOR 38 YEARS**

In the 38 years Clover Compound has been the first choice of expert machinists for precision lapping, over 40 million cans have been used, — each can demonstrating these long-famous Clover qualities • Perfectly graded, super-sharp, diamond-hard Silicon Carbide grain • Eight grades from microscopic fine to very coarse • Special heat-resisting petroleum hard oil binder • Withstands friction temperatures • Maintains uniform consistency and grain suspension • Fast-cutting • Cool-cutting • Does not burn work.



The trade mark that  certifies abrasive quality

CLOVER *Coated Abrasives*

Easily Identified by Color-Striping
and the Famous Clover Trade Mark

QUALITY ABRASIVES SINCE 1903

ment in case the well does not hold up for 20 years. The only provision in the guarantee is that it be painted according to good practice.

They are offered in both the straight and round types and in all popular sizes. Also available are strongly constructed hinged gratings that can be used over the well when it is desired to make the basement window burglar-proof, or to prevent the accident hazard of a pitfall.

MACHINE OPERATOR'S DESK

■ In addition to advanced designing and modern appearance, this metal machine operator's desk is made highly efficient and more functional because of its corner inset for placing calculating or adding machines within easy and comfortable reach. Desk-top working space is always clear of machine, yet both machine and work are close together. The General Fireproofing Company, Youngstown, Ohio, is the maker.



LIQUID RUBBER PULLEY COATING

■ Tests which have been made demonstrate that Nonslip Rubberpull, made by Nonslip Pulley Covering Co., Buffalo, N. Y., increases the efficiency of belt drives as much as 50%. The product, as its name implies, has a rubber base and is so compounded that it sticks to the pulley face regardless of the

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pulley and two belts. Belt slack is taken up turning the casting so proper tension is always assured. A range of 12 speeds is available through various combinations.

The multi-speed unit is quickly removed and easily adjusted. A grease-sealed ball bearing pulley is used in the assembly and insures smooth, even, vibrationless running.

This is an ideal and economical way to acquire lower and higher speeds than could otherwise be obtained. With this attachment it is possible to use a standard 1725 r.p.m. motor, where a special high speed or slow speed motor would ordinarily be required.

HELMET WITH HIDDEN HINGE



■ Keeping pace with progress in the art of welding calls for advanced ideas in protective equipment for operators. Such advance was noted recently in the introduction of a welder's helmet made of a new material that very effectively insulates against heat and weighs only fifteen ounces complete with lens and holder, as against the usual twenty ounces or more of the average helmet.

Lift-front types that give the operator a dense lens in the outer holder and a clear lens or less dense lens set in the inner holder have been popular with welders.

In this type of holder, which requires spring or friction hinges that will hold firmly in position the raised front, a marked improvement is announced in this Type "AA" lens holder. In this the inner and outer frames have concealed spring hinges which allow the outer holder to be raised or lowered in accurate positions. Incidentally, this type of holder is not riveted to the helmet but is interchangeable and is held in position by two screws. Manufactured by Sellstrom Manufacturing Co., Chicago, Ill.

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Full Speed ahead calls for cleanliness. Sanitary and orderly plant conditions prevent bottlenecks.

Fuller Industrial Cleaning Equipment is known the world over for quality and service, and is keeping factories, warehouses, steamships, docks, freight and express terminals clean and shipshape —ready for capacity business.

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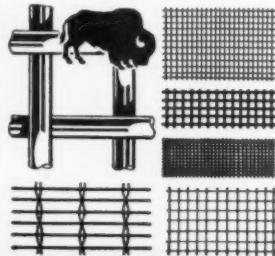
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Screens for abrasive material, chemicals and powder in Plain Steel, Tinned, Brass, Copper, Bronze, Monel and Stainless Steel. Complete stock of Galvanized After Woven Wire Cloth in standard sizes.

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For correct wire cloth construction, notice if it is mercilessly beaten together or aptly woven. Note if it is fatigued, sprung beyond working limits. Look at the crimping...too little results in spreading, costly rescreening. Too much weakens screen, giving shorter service.



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- 3 Notice immediate non-slip grip of belt.
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- 5 Notice quick starting, uniform speed under loads.
- 6 Now order supply for all your belts. Improve production.

CLING-SURFACE CO. (EST. 1896) 1018 Niagara St., Buffalo, N.Y.

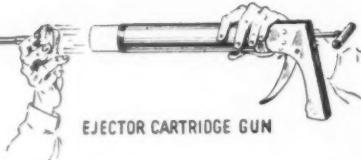
► Write for **CLING-SURFACE
FREE TRIAL BELT TREATMENT**

CAULKING GUN WITH AUTOMATIC EJECTOR

■ No longer need caulking tubes stick in the barrel of your caulking gun, for this trouble has been overcome by The Kenmar Manufacturing Co. Philadelphia, Pa., manufacturers of caulking guns, in announcing their latest improvement; a caulking gun with an automatic cartridge ejector, which throws out the empty tubes as soon as the cap is removed to reload.

This not only speeds up the operation, but is as great a labor saver as the tube itself over bulk caulk.

This ejector gun is really versatile as it is arranged to take care of all size cartridges, and with every gun additional parts are included to change over for bulk use.



EJECTOR CARTRIDGE GUN

30-INCH AIR CIRCULATOR

■ A 30-inch, two-speed air circulator has been placed on the market by The Emerson Electric Manufacturing Company, St. Louis, Mo.

Finished in chromium, its streamlined appearance is matched by its outstanding performance. This fan delivers a maximum of 10,000 cubic feet of air per minute and 7,500 c.f.m. on slow speed, reading taken (standard NEMA test method) four feet from fan. Breezes penetrate as much as 110 feet with a distribution in width of 20 feet.

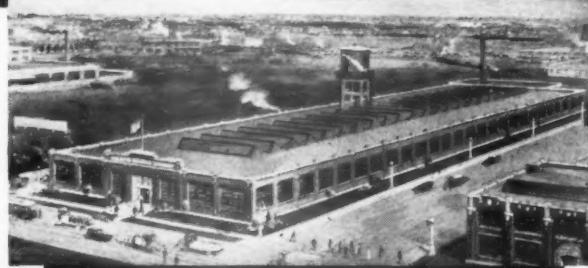
Available with four styles of mounting: ceiling mounting, adjustable floor column mounting, counter column mounting and wall bracket mounting.

Equipped with a powerful ball-bearing motor, it will give 6,000 hours of service before relubrication is necessary. It has three blades of formed heavy-gage aluminum highly polished and designed for large air delivery and quiet operation.



About a plant . . .
Its equipment . . .
AND ITS PRODUCT . . .

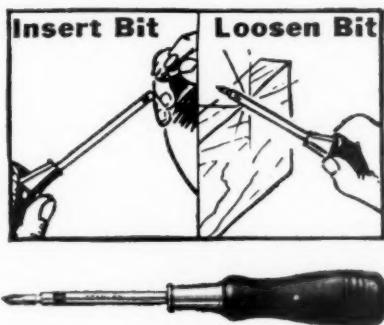
The large and completely equipped Ahlberg Plant in Chicago can meet your requirements for anti-friction ball bearings. Its specialized craftsmen and precision manufacturing equipment assure high quality bearings—24 Factory Branches and a network of supply houses—assure you of a complete and economical service on Ball, Roller and Mounted Bearings. Ask for new Catalog No. 440 which gives detailed information.



Ahlberg Bearing Company

Manufacturers of CJB Master Ball Bearings
3039 WEST 47TH STREET — CHICAGO — 34 WAREHOUSE BRANCHES
Out West PRECISION BEARINGS, INC. Los Angeles

REPLACEABLE TIP SCREW DRIVER



■ A screw driver that takes tailor-made bits to drive definite sizes of screws has been announced by Stanley Tools, New Britain, Conn.

The tool holder has a chuck forged on the blade into which the shank of the bit is inserted. With the tool holder are 5 alloy steel bits; two for driving Phillips

type screws and three for slotted head screws.

This tool is especially valuable for industrial assembly work and to those who drive screws in quantity; also for those who drive case hardened screws. When the tip becomes worn, it can be removed and another bit inserted; thus, instead of discarding a complete driver all that is necessary is an inexpensive bit.

BURNISHING TOOL

■ A development of the Ohio Carbon Company, Cleveland, Ohio, is designed to remove high resistance film on commutators, thereby reducing uneven wear and brush failures.

The burnisher, made of specially prepared material, is mounted in a wooden handle, and is firmly held against the commutator until the film or glaze is removed. Because of the suction quality of the material, this tool actually sucks out dirt which accumulates in the slats of under-cut commutators. It is made in several sizes for commutators up to 20 inches long.

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Get the complete FACTS on this new distinctive, streamlined, maroon-colored with crackle-finish, babbittted-bearing common flat box, developed by Link-Belt engineers for moderate speed and power requirements. Folder No. 1865 explains in detail the many money-saving features. Available from stock in 24 sizes, for shafts of $\frac{1}{2}$ " to 3" diameters.

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hands*

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Mione quickly removes grease, grime, stubborn stains and ground-in dirt, without injury to the most sensitive hands. Its scrubbing action is provided by two mild organic abrasives—one a carefully selected size, fine enough to scrub the finer ridges of the skin, the other providing a rapid means of removing the heaviest layers of grease and grime. Leaves the hands soft and smooth.

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LEE-BUILT SPRINGS**

LEE SPRING CO., INC.
30 MAIN STREET BROOKLYN, N.Y.

CONVERTIBLE SHOVEL

■ A **lightweight** $\frac{3}{4}$ -yd. convertible shovel - dragline - crane has been announced by Link-Belt Speeder Corp., Chicago, Ill., as a companion to its popular heavy-duty $\frac{3}{4}$ -yd. machine.

All-welded steel construction has replaced castings in the new machine. The power plant is a heavy-duty gasoline or Diesel engine with smooth-running roller chain drive. Alloy steel, machine-cut spur gears drive the reverse and drum shafts. These turn in heavy bronze bearings.

External band clutches enable the operator to "feel" the load at all times. This sensitivity, plus external band brakes operated by automotive type pedals, is said to result in perfect control of the load and the greatest accuracy in placement. All brake bands are instantly accessible for adjustment and can be removed easily for re-lining.

A large-diameter turntable and long, wide crawlers give it extra stability on slopes and in heavy digging. The turntable is made of alloy steel with internal gear. A roller path machined on a bevel permits the use of large, wide-faced conical rollers that revolve without slippage. Upper and lower frames are connected by a heavy alloy steel center quill with large adjusting nut.

A three-piece traction shaft driven by fully enclosed alloy steel bevel gears transmits full power to the crawlers by means of heavy, heat-treated roller chains.

Crawler shoes are abrasion-resisting, non-clogging, lug-driven, with close pin centers to insure smooth action. Added stability results from using double-faced track rollers, increasing the effective crawler width. Track adjustment is provided at both ends to maintain perfect alignment and tension.

Controls operated from within the cab permit steering in both directions, either gradual or sharp, regardless of the relative position of cab and lower base. A positive traction lock, controlled from the cab and engaging in three positions, prevents movement of the crawlers while working, eliminating any necessity for chocks or blocking.

DRILL PRESS ATTACHMENT

■ An **ingenious** attachment has been developed by the Delta Mfg. Co. of Milwaukee, Wis., for 14" drill presses that provides a wide range of speeds for both high speed and slow speed models. This attachment consists of a heavy casting which mounts in the drill press column together with a cone

NO MORE LOOSE FASTENINGS

... when ordinary nuts are replaced with **Stop Nuts**. Widely used on mechanical and electrical equipment...for safety and economy.



Catalog contains a graphic explanation of the Elastic Stop principle, presents test and application data, and lists the complete line of nuts • Write for a copy.

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2337 VAUXHALL ROAD • UNION, NEW JERSEY



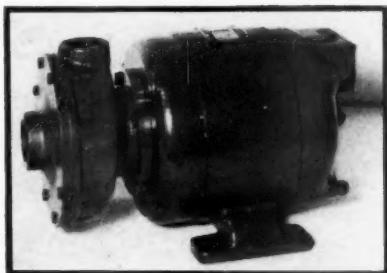
Elastic Stop SELF-LOCKING NUTS

pulley and two belts. Belt slack is taken up turning the casting so proper tension is always assured. A range of 12 speeds is available through various combinations.

The multi-speed unit is quickly removed and easily adjusted. A grease-sealed ball bearing pulley is used in the assembly and insures smooth, even, vibrationless running.

This is an ideal and economical way to acquire lower and higher speeds than could otherwise be obtained. With this attachment it is possible to use a standard 1725 r.p.m. motor, where a special high speed or slow speed motor would ordinarily be required.

CENTRIFUGAL PUMPS



No. 225

and where a large volume of flow is desired at a low head. They are suitable, also, for light transfer work.

They are of compact design, the No. 225 having a foot type motor bracket, the



No. 245

preferably should not be below pump. Because of their compactness and the wide flexibility of their installation possibilities they are particularly suited as standard machine equipment and for installation in places where space is limited.

The Brown & Sharpe Mfg. Co., Providence, R. I., has added to its line of pumps two new motor driven centrifugal pumps, Nos. 225 and 245. These pumps are suited for supplying coolant for machine tools and for use where dirt or abrasives may be present in the liquid

and where a large volume of flow is desired at a low head. They are suitable, also, for light transfer work.

They are of compact design, the No. 225 having a foot type motor bracket, the

No. 245 pump is also a compact, closely coupled unit and the flange mounting is integral with pump so that unit does not require inlet piping. Discharge port of this pump can be shifted to any 45° angle with intake or suction. Also, entire pump assembly can be located at any 90° position with respect to motor.

Pumps are designed for operation with impeller below the liquid level and can be mounted in practically any position with pump horizontal or vertical, except that motor

preferably should not be below pump. Because of their compactness and the wide flexibility of their installation possibilities they are particularly suited as standard machine equipment and for installation in places where space is limited.

Ask for New 192 Page DARNELL MANUAL

The new Darnell Manual describes nearly 4000 casters and wheels for light, medium and heavy duty use.



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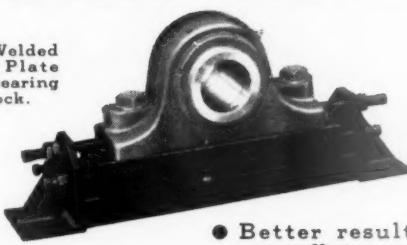
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Type "B" Welded Steel Base Plate with roller bearing pillow block.



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• Better results and greater efficiency are obtained by using Link-Belt all welded steel base plates for babbitt and roller bearing pillow blocks. They provide a simple, convenient, efficient and economical means of adjusting bearings for shaft alignment.

Their welded steel construction assures the desirable combination of light weight, rigidity, and durability.

Standard sizes are available for bearings in shaft sizes of 1^{11/16}" to 8" in two styles—type "A" for horizontal adjustment only, and type "B" for both vertical and horizontal adjustment. Special base plates made to order. Send for Folder No. 1882.

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FOR ALL TYPES OF PILLOW BLOCKS

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Booth No. 132

TO INSPECT:

★ CORRUGATED SHIPPING CASES in a variety of rainbow hues, printed in 1 or 2 contrasting colors give distinction to your product's package.

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★ BEND-N-RAP: the 2 in 1 flexible wrapping material combining the cushioning of corrugated with the strength of Kraft.

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CAPACITIES
1 to 1000 G.P.M.

PRESSES
Up to 1000 lbs. per sq. inch

MOUNTINGS & DRIVES
21 Different Types to meet your requirements

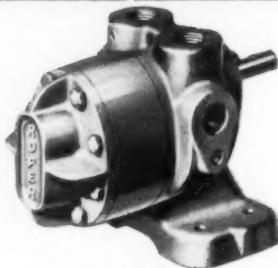
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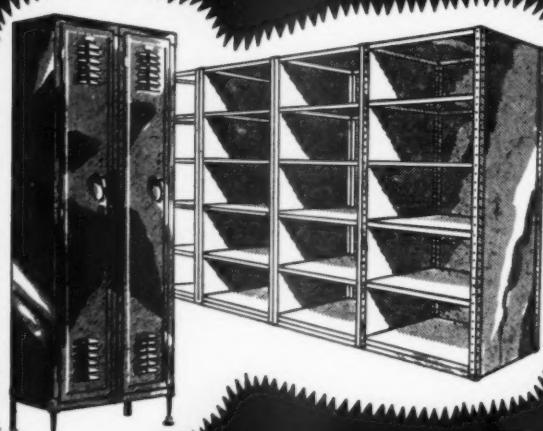


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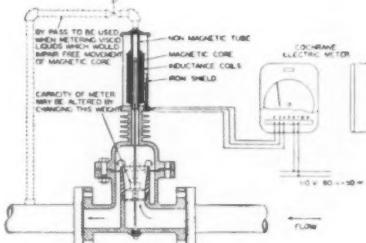
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INDICATING-RECORDING-INTEGRATING INSTRUMENT

■ The "Linameter", a new type of meter manufactured by Cochrane Corp., Philadelphia, Pa., is adapted particularly to the measurement of fluids having characteristics of viscosity, corrosiveness and solubility such as fuel oil, ammonia, hot tar, etc., which are beyond the scope of the conventional orifice type flow meter.

This meter is of the area type, with meter body installed as an integral part of the pipe line, and containing a weighted disk positioned by the velocity of fluid through a tapered throat section in such a manner that the disk travel is directly proportional to flow rate. Attached to the weighted disk is a rod and iron core, the latter of which traverses the field of two reactance coils surrounding the pressure tight tube of the meter body. These coils form a reactance bridge when connected electrically to similar coils in the indicating, recording and integrating instrument to any desired distance from the meter body. Measurement is accomplished in the recording instrument by use of the galvanometer null principle.



MERCURY MIDGET SWITCH

■ An extremely small mercury switch measuring only $\frac{1}{16}$ " long by $\frac{3}{8}$ " diameter is being made by Littelfuse, Inc., Chicago, Ill.

This switch is designed for use in low voltage circuits up to 25 volts a.c. or d.c., and currents up to 10 amperes at 6 volts and 3 amperes at 25 volts. There is no friction or wear in operation, and no maintenance or attention is required. The durable metal and bakelite body contains the mercury. A newly designed baffle device assures positive "make or break" operation, with no opportunity for flickering action when equipment is jolted.

PIPE CUTTER

■ A special handle 4-wheel cutter for work in close quarters and for increased cutting speed has been developed by The Ridge Tool Company, Elyria, Ohio. The 4 cutting wheels provide better balance and handling of the cutter under all conditions, cut more evenly and save time in cutting iron, steel or brass pipe. Frame is of malleable alloy, capacity $\frac{1}{2}$ " to 2".

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POWER FLANGER



■ The Power Flanger shown in the accompanying illustration is manufactured by the Lockformer Co., Chicago, Ill., specialists in sheet metal fabricating equipment. It is designed for the heating and ventilating shop. It will turn a $\frac{1}{4}$ " flange on 18 to 26 gauge metal, fitting all Pittsburgh locks. It flanges any radius from $1\frac{3}{4}$ " up on any irregular shape in a single pass through the machine. A calibrated setwheel adjusts forming rolls to proper gauge of material to be flanged. No starting flange necessary. Requires no power line, it will operate from any light socket. This flanger is of steel construction, sturdy, yet light, can be carried on job.

power line, it will operate from any light socket. This flanger is of steel construction, sturdy, yet light, can be carried on job.

POWER-PROPELLED TRUCK

■ The greatest profit eater is the excessive cost of handling materials or merchandise. The power-propelled truck, manufactured by L. F. Milner, Indianapolis, Indiana, was designed and built to handle racks of concrete blocks or other products in warehouses or factories, to and from storage. One man can move four to five times as much material with this as he can with a hand-pulled truck.

It weighs about one-third that of other powered trucks of equal capacity, and sells for about one-third their cost. The truck moves in any direction without the use of any reverse gears. It is the only powered truck that will turn around within its overall length. It is Hyatt Bearings equipped and all wheels are rubber tired. It is an outstanding development to move skid or platform loads of material, low in maintenance cost and high in tonnage movement.

PEN AND PENCIL SETS

■ To make your gift occasions live forever, give not a short lived token, but a Sheaffer's Lifetime—smooth feathertouch two-way point—forceful one stroke filling and flushing action for perfect performance. Teamed with the permanently sharp fineline pencil, they cost no more than many quickly-worn-out gifts. All pens are unconditionally guaranteed for the life of the user, except against loss and willful damage.

The sturdy, precise mechanism outlasts all others. Thirty-nine per cent smaller writing point is perfect for exact drawing and figuring, for crisp, legible carbons, for distinct shorthand, and for general writing service. Large double duty propelling eraser and spiral grip for tireless writing. Available in black, red, green, blue and brown. Product of W. A. Sheaffer Pen Co., Fort Madison, Iowa.

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HIGH-FREQUENCY CAPACITORS

■ **Water-cooled Inerteen** capacitors, for high-frequency service on induction furnaces and similar applications, has been announced by the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa.

Capacitor sections are made by winding a special grade of paper with thin copper foil. Foils are bonded on one end to the water tube, so that they conduct heat to the water and carry the current. Leads are brought out at the center and the ground terminals of each group of sections is near the ends of the case.

The case is of welded construction with a recess at the bottom to aid in locating the unit on insulators. The top is made of non-magnetic stainless steel on ratings of 5,000 cycles and above, to limit the heat generated in the cover.

Inlet and outlet water connections are tapped for $\frac{1}{4}$ -inch standard pipe threads and short tubes are furnished for attaching rubber hose. The complete unit is vacuum dried and impregnated and filled with capacitor Inerteen, a noninflammable fluid; in combination with the capacitor paper used it is especially suited also as a dielectric for high-frequency applications.



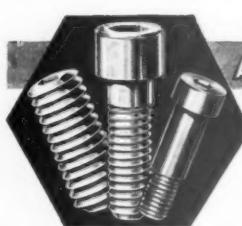
STEAM LOCOMOTIVE

■ **The H. K. Porter Co., Inc.**, Pittsburgh, Pa., has completed a new steam locomotive which embodies several design and construction improvements over existing equipment. The locomotive is ideal for steel mill, switching and general plant use.

Designed for use on 30" track up to standard gauge, it is 7' 4" wide, 10' 6" high and 22' 10" long from bumper to bumper. Four 42" diameter driver wheels, connected, provide a tractive force of 26,000 lbs. Despite its large tractive force, the locomotive is designed so that it can take a curve of 50 ft. radius. It is of the saddle tank type, with boiler 56" in diameter, designed for a working pressure of 180 lbs. per square inch. Bituminous coal is the fuel used.

ARC WELDERS

■ A line of a.c. arc welders to include four models with maximum capacities of 75, 150, 200 and 300 amperes has been placed on the market by The Emerson Electric Manufacturing Company of St. Louis, Mo. Some special features include: Clear vision inclined selector panel for easy selection of heats from an erect position; the various heats being plainly etched in white. Heavy-duty on-and-off line switch located on selector panel. Protected plug and jack connections. No danger of personal injury or damage from accidental contact with the connections while in service, as they are all inside the cabinet.



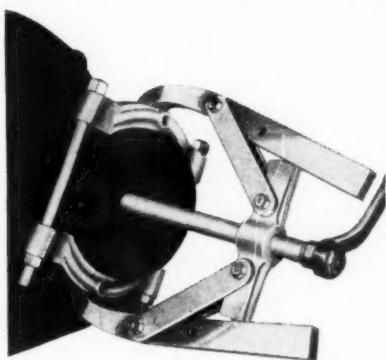
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SHEAVE PULLER



■ For use with gripomatic pullers the Owatonna Tool Company, Owatonna, Minn., has designed and built a pulling attachment to remove multiple V drive sheaves.

It is impractical to attempt the removal of these sheaves by hooking onto the outer periphery with a jaw puller. In this manner the sheave

becomes distorted and damaged. With this attachment this danger is eliminated. The pulling attachment is applied at the base of the V groove and the pulling strain distributed over a greater area. The gripomatic puller is then applied to provide the actual pulling power.

The illustration shows this combination in use on a 10" sheave. The maximum capacity of the sheave puller attachment is 10". It will pull any sheave regardless of the number of V grooves up to this diameter.

SOFT FACE HAMMERS

■ To meet the increasing need for soft face hammers, Bonney Forge & Tool Works, Allentown, Pa., have added five new types to their line.

These new types and sizes are especially useful where a hammer is required that will not mar finely finished surfaces or delicate machine parts. The new shaped tips are especially useful for forming and working light sheet metal.

They are available with one regular face tip and one ball pein tip; with one straight pein tip and one cross pein tip; with two ball pein tips; with one square tip and one offset pein tip; with two regular face tips and with one regular face tip and one regular face tip with brass insert.

DEHYDRATOR

■ An automatically-operated, self-contained dehydrator, embodying the principle of removing moisture from air by absorption without resorting to low temperature cooling, has been placed on the market by Carrier Corporation, Syracuse, N. Y.

It employs silica gel, capable of absorbing up to 40 per cent of its weight in moisture, as the dehydrating substance. The equipment is particularly adaptable to manufacturers of candy, chemicals, drugs, explosives, films and other industries where it is desirable to maintain humidity conditions independently of dry bulb temperature conditions.

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Data on the complete line will be found on pages 598 to 617 of General Catalog No. 800 and Power Transmission Equipment Book No. 1600.

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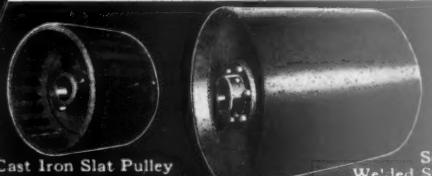
Solid Cast Iron Single Arm Pulley



Cast Iron Tight and Loose Pulley



Steel Split Pulley

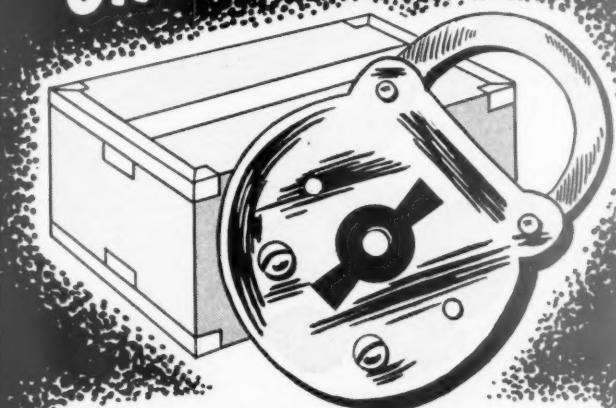


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■ **A stretching tool** for steel strapping shipments, which embodies a completely new gripper action principle has just been made available by Signode Steel Strapping Company, Chicago, Ill.

In this tool, the gripper jaws are located in the bottom of the front base of the tool—the strap is gripped at the edges—so that the foot or base of the stretcher is not under the strap in the tensioning operation.

It is possible with this new stretcher to apply strap of wide and heavy gauges to small bundles or steel rounds, flats, hexagons, and other con-compressible commodities such as auto truck springs, steel coils, etc., with considerable tightness as all slack is eliminated since there is no stretcher foot under the strap.

RADIAL DRILL

■ **Walker-Turner Co.**, Inc., Plainfield, N. J., have developed a new radial drill which makes available to industry for the first time a low-cost radial drill for performing light duty operations.

Because the radial performs such operations as drilling, tapping, routing and light profiling with speed and accuracy, it is finding wide use in the aircraft industry for stack-drilling sheets, spars, etc., by tool makers for drilling in jigs and fixtures and for pattern making; by shipbuilders for drilling metal plates and sheets; in the electrical industry for drilling switchboard panels, etc., and in countless industrial plants for a variety of operations.

Design and construction provide for versatility, accuracy and ease of operation.

RACK FOR HANDLING COIL STOCK

■ **An all-steel** rack designed especially to fill the requirements of the plant or department which handles quantities of strip stock in coils, has been placed on the market by Mechanical Handling Systems, Detroit, Mich.

This rack is intended to eliminate manual lifting, loading, unloading and moving of heavy coils of strip metal, since each unit of the rack, with its load of stock, may be handled quickly and easily with an electric truck equipped with forked cradle and hoisting mast.

It is manufactured in units approximately two feet wide, three feet long, and three feet high. The racks are made of square tubular steel sections, electrically welded and rigidly braced.

EXHAUST HOSE

■ **In line with** the continually increasing movement for greater safety and increased hygienic conditions for industrial workers, The B. F. Goodrich Company, Akron, Ohio, are offering a line of specially constructed exhaust hose for conducting fumes and abrasive dust.

The hose is light and flexible, easily bent at short angles so that it may be easily located right at the machine or spot

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Because of this vigilance, Newton customers are often saved a very considerable amount in their assembling departments—time that might be expended in getting unwilling parts into place!

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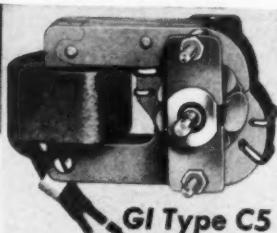
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from which the fumes and dust may originate.

Made with smooth rubber tube, helical wire reinforcement plies of fabric and corrugated rubber cover. The ends regularly furnished are built for three inches back without wire to facilitate fittings.

The hose is manufactured in sizes ranging from 2 to 12 inches in diameter, in eight, 15 and 25 foot lengths.

Tubes are specially compounded because the velocity of the dust laden air creates an abrasion problem.

ALL GLASS PUMP

■ One of the most sensational developments of the past year was the Pump of Glass, a 1 1/2" x 2" Centrifugal Pump of "PYREX" brand glass, produced jointly by Nash and the Corning Glass Works, and marketed by the Nash Engineering Company of South Norwalk, Conn.

The outstanding success of this pump in service created a demand for a smaller size, and a 3/4" x 1" pump, with a capacity of 10 gallons per minute, has been perfected and is now available. This capacity is ideally adapted to the smaller installations and for laboratory and pilot plant service.

Like the larger pump, this new size is actually constructed of glass, volute, head and rotating impeller, and is fully transparent, and has the same advantages where corrosive liquids or liquids which must be kept chemically uncontaminated are to be handled. A unique mechanical seal replaces the conventional stuffing box, and a safety unloading device eliminates the possibility of fracture of the glass casing. This pump will handle hot acids or brine cooled liquids with equal facility and should offer the solution to many chemical, process, and food plant problems.

OPEN-END V-BELTING

■ With the present intensive defense preparations being made by industry calling for every bit of power producing machinery to be put into shape for the tasks ahead of it, many old-fashioned lineshafts which have been idle or allowed to fall behind maximum efficiency are being fitted for rigorous service.

Much of this is being made possible by equipping these lineshafts with long-length, open-end V-beltting.

The B. F. Goodrich Company, Akron, Ohio announces a line of open-end V-beltting for application on drives where endless V-belts cannot be applied or can be put on only at considerable expense and trouble in tearing a machine apart to get at the sheaves.

Made in maximum 50 foot lengths the open-end V-beltting is made in top widths of 21/32", 7/8" and 1 1/4", and in thicknesses of 7/16", 5/8" and 3/4". Angle in each case is 40 degrees. Metal fasteners are used.

The beltting is made to the same high standards applied to their endless V-belts. Engineering instructions on applying the beltting to any particular installation are given, together with rules governing operating conditions.



The flanges of these universal joint yokes are drilled by "Cleveland" Drills on an 8-spindle press. Output averages 165 flanges or 1320 holes per 8 hours. The illustration represents about 1 hour's production of drilled flanges.

However complicated or costly your drilling may be, The Cleveland Twist Drill Company is qualified by more than 65 years' experience to help you produce holes for the least money. Awaiting your order today are Cle-Forge High-Speed

Drills and "Peerless" Reamers correctly formulated to work any ferrous or non-ferrous metal, fiber or plastic with speed, precision and economy.

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On any puzzle: if it involves mechanical steels, Frasse Technical Service can help you solve it sooner. Practical, long-experienced Frasse engineers are well qualified to give you the answers. Hundreds of F.T.S. case histories are on file—open to your inspection—to prove the point.

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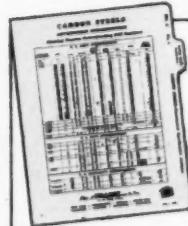
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"He even worked on fluorescent lighting!"

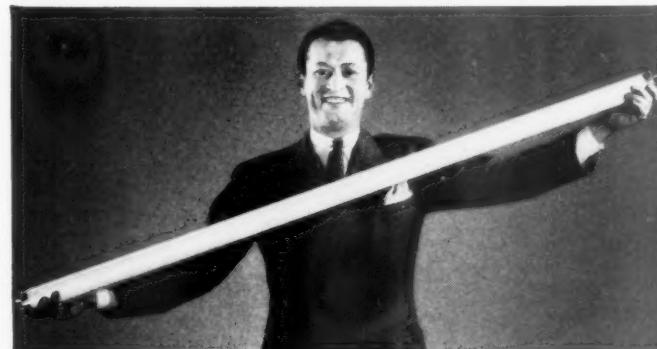
A NEW SCIENCE STORY THAT CONCERNED EDISON AND YOU...



1 JOE: I'll be jiggered, fluorescent lighting in a club car!
 AL: Brand new idea in lighting, isn't it?
 JOE: Older than you think, Al. Even Edison worked on it!
 AL: That man must have thought of everything!
 JOE: Well, he *did* patent a fluorescent device in 1907!



2 JOE . . . But General Electric spent years in research to produce today's high efficiency fluorescent lamps. They had to develop their own Phosphor—the material that transforms ultra-violet into visible light—then grind it almost as fine as that girl's face powder! For top efficiency it's got to be just so fine and no finer!



3 AL: Sounds like a peck of trouble just to make a lamp!
 JOE: Yes, and that's only *one* thing G. E. does to make them give maximum light throughout life. In their Cleveland laboratory, they keep G-E MAZDA F (Fluorescent) lamps burning night and day till they go out! In three years, they've increased light output as much as 40% and reduced prices as much as 45%.



4 AL: What about fixtures? Does G.E. make those too?
 JOE: No, General Electric doesn't make fixtures for these lamps. But they helped set up rigid standards for Fleur-O-Lier fixtures certified by Electrical Testing Laboratories. See the tag? Any manufacturer can get this certification if his fixtures meet the specifications. Over 40 companies cooperate to make Certified Fleur-O-Liers in all sizes and styles.



5 AL: Where would I get fixtures for my business?
 JOE: Your G-E lamp supplier can show you a full line of certified fixtures with G-E MAZDA F lamps, ready to use!
 AL: I'll take General Electric's word for it!
 JOE: Right! You know the story of Edison's first bulb? Well, today's G-E bulbs give 10 times the light at 1/10 the price—and G-E MAZDA F lamps are following right in their footsteps!

NEW QUANTITY DISCOUNTS

\$5 worth for \$4—\$15 worth for \$11.25

Is your company taking advantage of new low quantity prices on all types of G-E MAZDA lamps? 20% off, \$5 to \$15 list; 25% off, \$15 or over. New and larger discounts to contract purchasers. See your G-E lamp supplier!

G-E MAZDA LAMPS

GENERAL  ELECTRIC

MAZDA: Not the name of a thing, but the mark of a research service

WHY BUY "TRIAL AND ERROR" SPRINGS

WHEN IT IS POSSIBLE TO GET

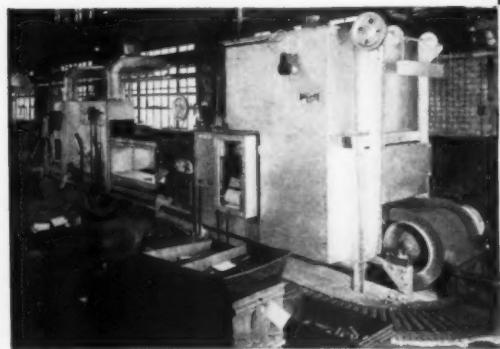
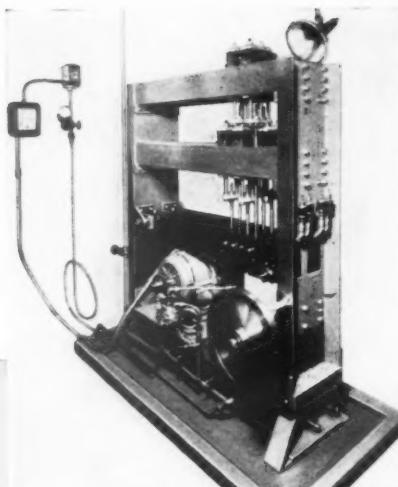
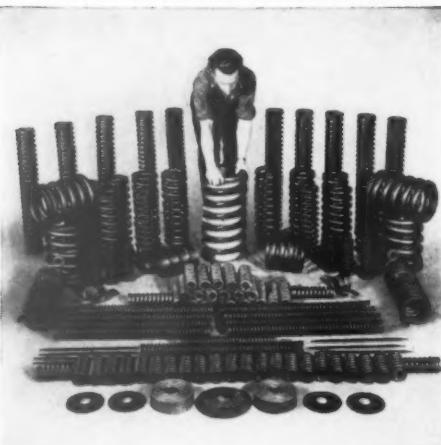
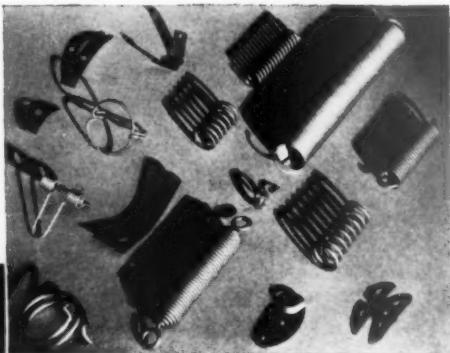
Tested Performance?

Do you know how little it costs to get the *right* spring the *first* time? Do you get the savings in inspection and assembly time that tested springs can give?

In working with many progressive manufacturers for better spring performance, we have developed testing equipment to accurately pre-determine the action and fatigue characteristics of springs before they are put into final use.

Consumer demand is for uninterrupted performance. Gibson springs help you to meet it.

- ✓ COILED SPRINGS
- ✓ TORSION SPRINGS
- ✓ FLAT SPRINGS
- ✓ SMALL STAMPINGS
- ✓ WIRE FORMS



CONTROLLED HEAT-TREATING

All latest types of furnaces for efficient production. Gibson has pioneered in the use of bright hardening with continuous-type controlled atmosphere furnaces, especially in quantity production of springs.

ENGINEERING RESEARCH

Stroboscopic studies are made of surge and shimmy of springs in actual use in customer's mechanism. Metallurgical tests determine limitations in design which should be imposed upon various materials.

LOAD-VIBRATION TESTS

Here is an exclusive Gibson development in a universal, heavy duty, high-speed fatigue tester. Accommodates up to eight springs at once, running at 2,000 r. p. m. An oscillating walking beam distributes varied but accurately controlled stresses, to determine fatigue characteristics.

VARIED MATERIALS

A large stock of spring materials of KNOWN quality and uniformity is always on hand...spring steel, carbon or alloy, stainless alloys, monel, brass, phosphor bronze and non-ferrous alloys.

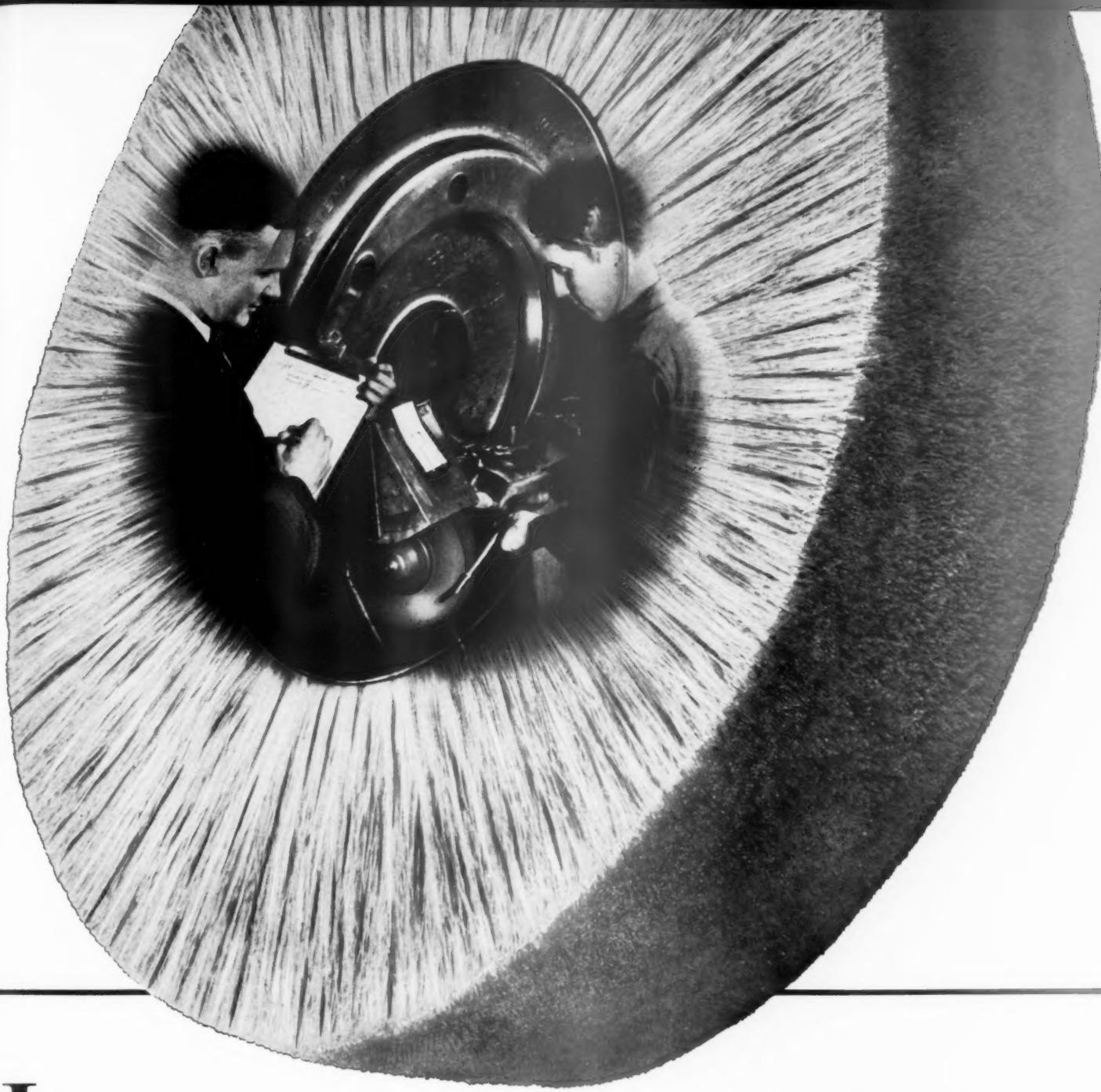
William D. Gibson Co.

DIVISION OF ASSOCIATED SPRING CORPORATION

1800 CLYBOURN AVENUE • CHICAGO, ILL.

GIBSON-SPRINGS

When writing William D. Gibson Co. please mention Purchasing



If somebody in your plant thinks brushes are unimportant tell him how the right brush for one job increased production 500%!

• A soap manufacturer was having trouble cutting soap flakes. Knives were standard practice in the industry but they couldn't control thickness of the chips.

An Osborn Brushing Specialist suggested a wire wheel brush, standard in the Osborn line. It costs less than the knives, now does the job perfectly—and the soap so lubricates the brush that it gives promise of lasting a decade.

This is the sort of service Osborn

Brushing Specialists are rendering every day in scores of plants. Call the one near you for a Brushing Analysis. He'll find at least one cleaning, polishing or finishing operation that brushes can do better, and probably a number where even slight changes in brushes can save you money

or increase production or both.

His report is confidential. There's no cost, but every plant that ever had an Osborn Analysis made has been highly pleased with the results. *Write The Osborn Manufacturing Company, 5401 Hamilton Avenue, Cleveland, Ohio.*



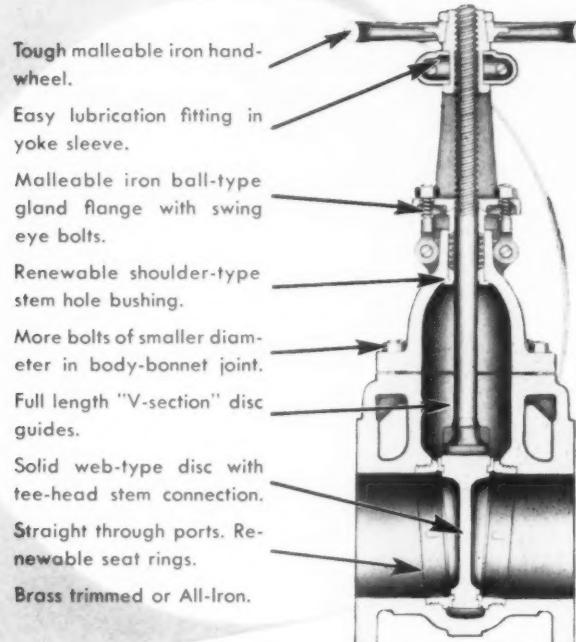
A NEW, IMPROVED LINE OF IRON BODY WEDGE GATE VALVES

For 125 Pounds Steam, 200 Pounds Water, Oil or Gas

Advanced design throughout these valves increases adaptability for service and minimizes maintenance in severest usage. Made in all types: Non-Rising Stem...Outside Screw and Yoke...Quick-Opening...Underwriters' Patterns...Marine Cargo Oil System Valves. Also in Alloy Cast Iron. Flanged, screwed, or hub ends.

Catalog giving complete specifications on the entire line is available from your Crane Representative or by mail request.

NEW FEATURES LIKE THESE IN ALL PATTERNS



CRANE CO. GENERAL OFFICES
836 S. MICHIGAN AVE., CHICAGO
VALVES • FITTINGS • PIPE • PLUMBING • HEATING • PUMPS
NATION-WIDE SERVICE THROUGH BRANCHES AND WHOLESALERS IN ALL MARKETS

When writing Crane Co. please mention Purchasing



MARTYRED...

To Make Pipe Fittings Serve You Better!

Relentlessly, the pressure indicator moved past 5,000 . . . 10,000 . . . 20,000 pounds. Not until it reached 21,350 pounds, did this $\frac{3}{4}$ " Grinnell Tee completely flatten out . . . sacrificed to prove the superior qualities of Grinnell Malleable Iron Fittings.

Even more important than the extra strength, this ruthless test shows the super-toughness Grinnell Malleable Fittings possess because they're made from Air-Furnace metal. For, the Grinnell Fitting merely flattened out at terrific pressure, where poorer quality fittings shattered into fragments at only 16,500 pounds!

Whether they serve on your household water pipes or in heavy-duty systems, Grinnell Fittings give you extra safety margin and extra assurance



against trouble. This is but one typical example of the extra service values that consistently go with Grinnell Products . . . automatic sprinkler fire protection systems, prefabricated piping, unit heaters and others, alike. It illustrates why Grinnell is the outstanding name "Whenever Piping Is Involved"! Grinnell Company, Inc., Executive Offices, Providence, R. I. Branch offices in principal cities.

Grinnell Company, Inc. • Grinnell Company of the Pacific •
Grinnell Company of Canada, Ltd. • General Fire Extinguisher
Company • American Moistening Company • Columbia Malleable
Castings Corporation • The Ontario Malleable Iron Company, Ltd.

GRINNELL

WHENEVER PIPING IS INVOLVED

When writing Grinnell Company, Inc. please mention Purchasing



Yours ON REQUEST

CATALOGS BULLETINS LITERATURE

TO AID YOU IN PURCHASING

1—Solder Data—A useful chart giving considerable data about solder, such as the melting point when composed of various percentages of tin and lead, and a soldering guide for different metals, has been issued by L. B. Allen Company. The chart is in the form of a folder to file additional sheets of solder information as they are issued by the company. Sheets already available include data on the strength of solder, breaking strength of wire solder, how to solder stainless steel pipe and others.

2—Centrifugal Pumps—A comprehensive 40-page bulletin issued by the Allis Chalmers Manufacturing Company describes their single-stage double-suction centrifugal pumps. In addition to construction features, pump dimensions, normal and special application data, this profusely illustrated bulletin presents friction tables, head-capacity tables, and other valuable pump engineering information.

3—Dust Control—Dust engineering is the subject of a quarterly magazine issued by the American Air Filter Company. This interesting magazine, available to those interested, discusses all types of actual installations where engineered dust control has been applied.

4—Pre-finished Metals—The American Nickeloid Company have issued a folder describing how their pre-finished metals can speed up production. These metals, which include a wide variety of alloys, are said to require no plating or polishing. They come in flat sheets, continuous coils and in flat wire, and are offered in all gauges, tempers and sizes.

5—Wire Rope—All about the use and care of wire rope is interestingly treated in a booklet replete with photographs and data tables. Methods of

splicing, attaching rope clips, sockets and other fittings are but a few of the subjects covered. The proper way to move, store and care for wire rope is likewise discussed, with photographs showing the damage due to kinks, etc. American Steel & Wire Company.

6—Small Tools—A neat, 230-page catalog issued by the Armstrong Brothers Tool Company illustrates and completely describes their extensive line of tools; all types of wrenches, cutting off, boring and planing tools and holders, high speed steel bits, lathe dogs, dies, etc. Specifications and prices are included.

7—Handling Equipment—A new, pocket-size catalog covering many types of material handling equipment is offered by the Barrett-Cravens Company. Numerous photographs show various types of stroke trucks, scale trucks, platforms, portable elevators, skid racks, platform trucks, floor trucks, bar stock racks and many other devices. Complete description and specifications are given for each type of equipment.

8—Wrenches—A new catalog announced by the Blackhawk Manufacturing Company describes their complete line of wrenches, with particular emphasis on the use of socket wrenches in speeding assembly, service and maintenance work. Many illustrations show details of the individual wrenches as well as the complete sets. All types are shown, from open end wrenches to a new type tension wrench which flashes a light when excessive tension is reached.

9—Axial Flow Fans—Their new types of axial flow fans are featured in a bulletin by the Buffalo Forge Company. Three years of research and test have done much to improve the efficiency, pressure characteristics and quietness of these fans. Performance curves and detailed drawings of the fans are included.

10—Papers—“Westons Papers”, a folder issued periodically by the Byron Weston Company, gives interesting and useful information about high grade papers. Each issue contains actual samples of various grades of paper. In addition the folder itself is printed on a type of Weston paper.

11—Heat Insulation—A catalog describing the use and properties of asbestos, diatomite, magnesia and rock-wool as heat insulators is offered by the Philip Carey Company. Numerous tables present valuable engineering information for pipe covering, tank jackets, wall insulation, etc.

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ARMS FOR DEFENSE!

● Human arms! The arms and hands of men working along the production lines in thousands of industrial plants! They are "arms of defense" as vital as military arms.

But, for efficiency these arms and hands need good tools — just as good soldiers need effective weapons.

Files. The world's largest file factories are working to meet defense industries' heavy needs. And they'll always be good files — up to the standard and uniformity which have enabled Nicholson for years to guarantee Twelve perfect files in every dozen.

... Files to speed the arms that wield them. . . . Files with plenty of bite when there's a lot of metal to be removed. . . . Files with correct cut and an even cutting surface when smooth finish is required. . . . Files with the toughness and proper hardness for long serviceable life. . . . Files in every practical design and size to assure The right file for the job.

Nicholson and Black Diamond brands are available through your mill-supply house. FREE TECHNICAL BULLETINS on special-purpose files for brass, aluminum, stainless steel, die and foundry castings, die-making, shear-tooth and lathe filing. Specify the ones you are interested in.

NICHOLSON FILE CO. • PROVIDENCE, R. I., U. S. A.
(Also Canadian Plant, Port Hope, Ont.)



NICHOLSON FILES
FOR EVERY PURPOSE

NICHOLSON
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MADE IN U.S.A.

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CATALOGS

BULLETINS

LITERATURE

12—Case Sealing Glue—The Commercial Paste Company discuss their case sealing glue No. 1303 in a 4-page folder. This highly concentrated glue must be diluted before use and is said to set firmly in 30 seconds and to establish a permanent bond in 1½ to 2 minutes. Its many advantages are explained.

13—Duplicator Control—This duplicator control can be used to control almost any machine tool and is said to provide accurate duplicating control permitting the reproduction of original model directly in metal. The folder explaining this equipment shows various applications of the unit as applied to turret lathes, planers, shapers, millers, etc.

14—Pilot Lights—The Dial Light Company of America offer a bulletin discussing the features of their pilot light assemblies and parts. All parts are fully illustrated.

15—Protective Equipment—A well illustrated catalog showing all types of protective goggles, welding shields and transparent face shields is offered by the Dockson Corporation. Frame construction and lens for most every type of use are shown.

16—Odor Control—The scientific control of odors in recirculated ventilating air is covered by a folder put out by the Dorex Division of the W. B. Connor Engineering Corp. It is claimed that the use of the activated carbon canisters designed for this odor control greatly reduces the heating and air conditioning costs of a property.

17—Precision Grinders—An interesting book, full of valuable information about the care and operation of portable precision lathe grinders is offered by the Dumore Company. By text and illustrations this book tells how to select the proper type grinder and auxiliary equipment for particular jobs, how to set up the equipment, dressing the wheel, and how to eliminate various faults.

18—Electric Hoists—An interesting bulletin describing noiseless electric hoists of various designs and styles is offered by ElectroLift, Inc. Many photographs show actual installations and diagrams explain the details of the hoist and its worm drive.

19—Call System—A folder by Edwards and Company describes their "Locator" call system. Used to locate people in office or factory, the standard installation has a 20 call capacity. For larger areas 40 and 60 call units are used.

20—Electric Fans—The Emerson Electric Manufacturing Company offers a pocket-size catalog featuring their new fans, said to have improved performance and design. Listed are nearly 100 models, including desk and stand fans, air circulators, ceiling fans, exhaust and ventilating fans. Construction features, performance and prices are given.

21—Drafting Equipment—Everything for the drafting room is described in a 32-page catalog offered by the Engineering Sales Company. Drawing tables and chairs to T-squares and erasing shields are included.

22—Diesel Engines—How diesel engines can be modernized so as to profit from the better performance and greater economy of modern designs, is told in a booklet issued by Fairbanks Morse & Company. Testimonial letters are shown and diagrams illustrate the old and new methods of operation of diesel engines.

23—Draft Control—A new manual issued by the Field Control Division simplifies draft control by translating its engineering principles into non-technical terms. The need and function of the draft control in the average heating plant is clearly discussed. Complete engineering data are included.

24—V-Belt Drives—A comprehensive data book covering all types of V-belt drive applications has been published by the Fort Worth Steel & Machinery Company. This 64-page book contains useful information on such things as ratios, load capacities, friction losses, etc.

25—Arc-Welders—The General Electric Company circular GEA-569F describes their multiple-operator arc-welding systems. These systems are for manual or machine welding with metallic or carbon electrodes. Besides photographs of the machines, a wiring diagram shows how the equipment is connected.

26—Office Equipment—The General Fireproofing Company has issued a booklet full of pictures showing the equipment they supplied to furnish the offices of the Aetna Life Affiliated Companies. The illustrations are exceptionally clear and show the equipment used in the various departments.

27—Protected Type Motors—A new bulletin by the Howell Electric Motors Company, features their new line of open type protector motors. Although an open type machine, these motors are fully protected against dripping liquids, metal chips or other falling bodies. It is said to have a non-breakable frame and base, improved ventilation and other advantageous features.

28—Shovels—An attractive spring bound border indexes catalog of the Ingersoll Steel & Disc Division of Borg-Warner Corporation, which features all types of hand shovels. Square point, round point, moulders, spading, mining and irrigating shovels are a few of the types shown. In addition all types of spades are illustrated. Useful information is given about shovel construction, handle types, etc.

PURCHASING 205 EAST 42ND ST., NEW YORK, N. Y.

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It's on your shoulders.

It is the task of business to serve the public. It is the responsibility of every business man to keep his business honest and therefore profitable. It is the price of a sober's market.

Chicago Rawhide places emphasis on the service and the quality which will give you a lifetime. We will not deviate from our policy of guaranteed satisfaction in price and in price based on costs. If you have any specific question, whether on business or any other, we are here now, and we are here to help you with facts or with a lead.

Artificial Leather Products

Leather • Synthetic Leather

CHICAGO RAWHIDE MFG. CO.

Established 1878

1311 WEST BROADWAY • CHICAGO, ILL.

NEW YORK • PHILADELPHIA • PITTSBURGH • BIRMINGHAM
DETROIT • BOSTON • SYRACUSE • CLEVELAND • MILWAUKEE



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CATALOGS BULLETINS LITERATURE

29—Crepe Packing—The Kimberly-Clark Corporation offer a catalog showing several samples of crepe wadding designed for packing purposes. In addition to the various grades of crepe shown, the book includes several photographs showing how the material is actually used.

30—Water-cooled Roofs—A folder by the Koppers Company describes the use of water-cooled roofs for structures with or without air conditioning. It explains how much water should be used, construction costs, advantages of coal tar pitch, roof bonds and flashing. A graph shows the direction and degree of heat in and out of various types of roofs.

31—Base Plates—An 8-page folder issued by the Link-Belt Company features their welded steel base plates for pillow blocks. These base plates provide a sturdy and convenient means of adjusting bearings for shaft alignment. Full specifications for many types of pillow blocks are given.

32—Gift Merchandise—Timely suggestions for graduation, wedding and other gifts are illustrated in a new 28-page booklet by L. & C. Mayers Company. Of particular interest to firms which make a practice of presenting wedding gifts to employees.

33—Bolts, Nuts and Screws—All about headed and threaded products is contained in an elaborate 72-page book released by the Lamson & Sessions

Company. This interesting book not only describes how bolts and nuts are made, but includes many articles on gauging, threads and other features pertaining to nuts and bolts. Numerous photographs and drawings illustrate the text and clarify the explanations. A wealth of engineering information is included.

34—Labeling—This handbook contains complete data on the physical aspects of product identification, with numerous illustrations showing actual and suggested types of informative labels. The McLaurin-Jones Company.

35—Safe Slings—A reprint of an article Safe Sling Practice is offered by the Macwhyte Company. This story describes and illustrates the safe use of wire rope slings, showing various hitches and methods of placing the rope.

36—Hoists—Light weight, electric hoists, suitable for a wide variety of industrial applications are covered in a well illustrated folder offered by the Shaw-Box Crane & Hoist Division of Manning, Maxwell & Moore, Inc. Full construction details are given as well as a table of dimensions and capacities. A page of photographs shows many applications of these hoists.

37—A.C. Arc Welder—Several models of alternating current arc welders, ranging from 20 to 250 amperes, are discussed in a folder by the Marquette Manufacturing Company. These compact, portable units are said to produce a smooth flow of current so that the arc is easy to strike and hold.

38—Lever Dolly—The versatility and usefulness of a lever dolly is shown by a 4-page bulletin with many photographs. Actually a lever on wheels, these pieces of material handling equipment are described as having a multitude of uses, being inexpensive to buy, easy to handle and carry around. Several sizes are offered. Micro-Westco, Inc.

39—Onion Skin Papers—The Miller Falls Paper Company have just issued a new booklet on their thin onion skin papers. This booklet contains many ideas that may be applicable to your business. It is available together with sample sheets.

40—Use of Adhesives—National Adhesives present a small booklet devoted to information about adhesives. It tells how to prepare and use such things as glue, pastes, dry gums, paste powders and cullu-gums. Much useful information is given on this subject.

41—An Instructive article entitled "The Grinding Process and Its Dependence on Efficient Cooling"—appears in the March-April issue of the Oakite News Service, a house magazine of Oakite Products, Inc. This article describes the principal types of grinding and explains some of the "whys" for the high status of this machining process in modern production. Copies of this fact filled article are available.

42—Socket Screws—Cold forged socket screws for every purpose are featured in a bulletin of the Parker-Kalon Corporation. The elaborate tests and precautions used to assure high quality products are illustrated and explained on the first two pages. Complete specifications of the various types of screws are given in tables.

43—Metal Cutting Data—A new 12-page catalog published by the Peerless Machine Company is full of action pictures and metal cutting data of particular help to firms who have defense contracts for heavy artillery. A table on blade recommendations covers numerous combinations of speeds, feeds, and materials which can be cut with these new hydraulic automatic saws.

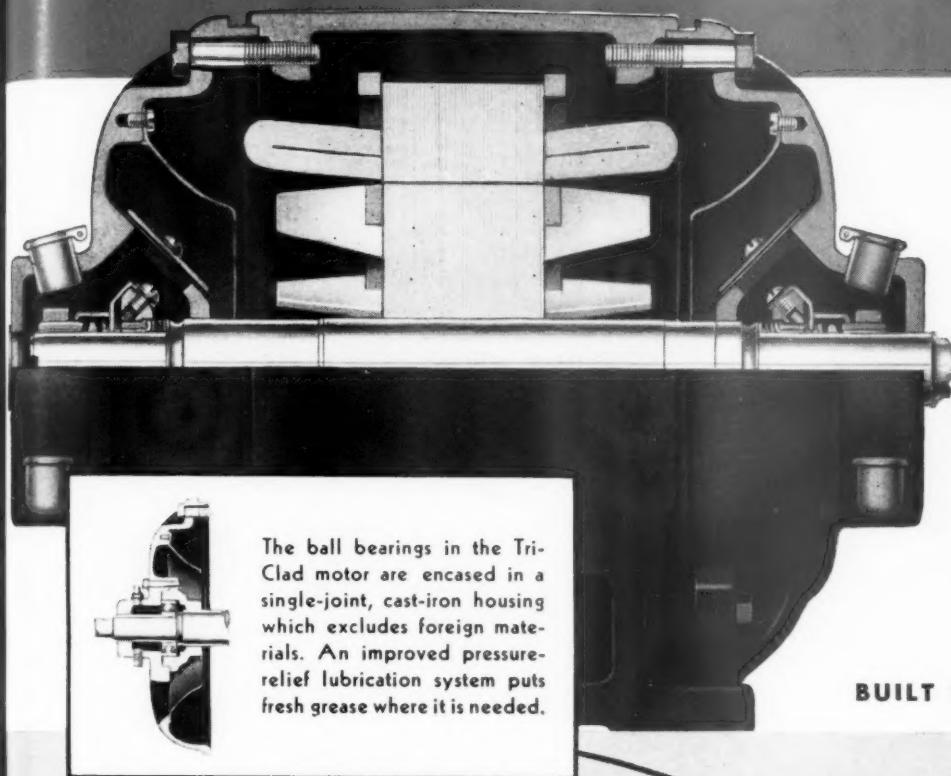
44—Trouble Light—Several models of portable, storage battery operated lights are described in a bulletin put out by the Portable Light Company. These lights, some of which are said to throw a half-mile beam of light, offer an adequate means of providing emergency spot lighting. Said to project a 300,000 beam candle power ray, they are adaptable for many uses, both indoor and out.

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We Cut Your MAINTENANCE WORRIES

WHEN WE CUT THE ENDS OFF THE BEARINGS!



The ball bearings in the Tri-Clad motor are encased in a single-joint, cast-iron housing which excludes foreign materials. An improved pressure-relief lubrication system puts fresh grease where it is needed.

In the Tri-Clad motor, G.E. uses a **SHORTER** sleeve bearing for **LONGER** life

This *shortened* sleeve bearing has higher load-carrying capacity and longer life. Positive lubrication is assured by its corrosion-resisting oil ring and improved spiral grooving—the bearing runs full of oil regardless of the direction from which the load is imposed.

1 to 20 hp now available.

BUILT FOR PROTECTION FIRST . . . TO LAST!

TRI CLAD

REG. U.S. PAT. OFF.

INDUCTION MOTORS

GIVE EXTRA PROTECTION 3 WAYS

Extra Protection
AGAINST
PHYSICAL DAMAGE

The strong, one-piece, cast-iron frame and end shields, with upper portion completely enclosed, protect vital motor parts from external blows, flying chips, settling dust, and dripping liquids.

Extra Protection
AGAINST
ELECTRICAL BREAKDOWN

Stator windings of Formex wire resist moisture, oil, and "heat shock." A tough, synthetic resin bonds the coils, and a coat of Glyptal No. 1201 Red on the end windings completes the insulation.

Extra Protection

AGAINST

OPERATING WEAR AND TEAR

For years, G-E motor designers have been experimenting with sleeve bearings of all kinds. They have found that a shorter sleeve bearing—one with new diameter-to-length proportions and a more effective spiral grooving—is a fundamentally better bearing; that such a bearing could successfully withstand the stress imposed by short-center, hinged-base drives and similar applications.

In addition, the new sleeve-bearing housing on Tri-Clad motors is dust- and oil-tight. These and many other features are your assurance of a dependable, free-running motor.

You'll find that Tri-Clad motors are unusually quiet and smooth running. They'll give your production extra protection during extra years of service. General Electric Co., Schenectady, N. Y.

Write for Bulletin GEA-3580 and specify Tri-Clad on your next motor order.

GENERAL  **ELECTRIC**

Yours ON REQUEST

CATALOGS

BULLETINS

LITERATURE

45—Snap Gauges—A new Pratt & Whitney circular features their new adjustable limit snap gauges. These are constructed with one solid anvil and two adjustable and bakelite insulating grips. The frame is finished accurately square so that the anvils are parallel and in line.

46—Metal Sheets & Fittings—Rust resistant iron sheets, strips, drains, fittings and pipes are described in catalog of the Republic Steel Corporation. Their "Toncan" line of products finds wide application for heating, plumbing and structural purposes.

47—For Soldering—Stainless steel flux, soldering and tinning flux, soldering paste and acid or rosin solder produced by the Ruby Chemical Company, are described in a folder offered by that company.

48—Plastics—An attractive catalog put out by the Richardson Company, features their synthetic plastic "Insu-rok." This material is useful for many things from gears to bearings, and can be machined in the ordinary shop with little difficulty. Many photographs illustrate just how to handle the machining of this substance. Other photographs illustrate many of the molded forms of the plastic.

49—Safety Clothing—The Safety Clothing and Equipment Company offer an interesting catalog describing and illustrating their numerous safety clothing and equipment products. Hoods, masks, helmets, asbestos clothing and

gloves, sandblast uniforms, safety belts, foot and shin guards and fire blankets are a few of the items discussed.

50—Face Protectors—The Sellstrom Manufacturing Company have available a complete catalog listing goggles, eye shields and face protectors. Suitable face guards for all types of work are shown by photographs and discussed in the text. Also shown are protective gloves, gauntlets and jumpers.

51—Shear Blades—A high speed cutting edge on the cutting side of shear blades is said to prolong the useful life of the blade considerably beyond that of the ordinary blade. A pamphlet issued by the Simonds Saw and Steel Company explains the features of their "Tungsweld" blades.

52—Abrasives—An attractive 11"x14" plant view book is offered by the Abrasive Company. This book, published on a soft paper, is filled with large, clear photographs that show the manufacturing processes used in making abrasive wheels, from the manufacture of the abrasive to the completion of the wheel by both the periodic kiln and the continuous tunnel kiln processes.

53—Cements—How to make practical, low-cost and lasting repairs to equipment and pipe lines without dismantling or use of heat, is described in a revised handbook of the Smooth-On Manufacturing Company. The cements are useful for stopping leaks in pipe joints, patching concrete floors and walls, waterproofing cellars, cisterns, etc.

54—Electrical & Lubricating Devices—The Trico Fuse Manufacturing Company offer a catalog discussing products devised to eliminate poor contact between fuses and clips, remove and replace fuses safely and lubricate all types of bearing surfaces with modern, visible, automatic oiling devices.

55—Electric Fans—The Victor Electric Products, Inc., offers an attractive catalog describing their new line of electric fans. Various types for desk, ceiling and floor mountings are illustrated and described. Prices and characteristics for each model are given.

56—Resistors—A new bulletin offered by the Ward Leonard Electric Company features their new vitrohm resistors. The resistance wire is embedded in and protected by a vitreous enamel. The entire resistor is said to be treated so that the wire will not change its characteristics in service due to molecular variations or aging.

57—Analyzer—An industrial power analyzer of a very compact design is described by a bulletin of the Weston Electrical Instrument Corp. This equipment, for single or polyphase electric circuit measurements, consists of a voltmeter, kilowatt meter, power factor meter and ammeter all set in a single box. Many features simplify the external wiring necessary for the meters and prevent harm being done by the wrong connections. The entire assembly can be easily carried from place to place and connected into the circuits to be measured.

58—Heavy Hardware—The Wilcox, Crittenden & Company, have issued a complete catalog listing their elaborate line of hardware. Everything from turnbuckles and block shackles to pulleys are mentioned, together with prices and dimensions.

59—Copper Alloys—A multi-colored, 4-page bulletin issued by the Whitehead Metal Products Company, describes their wide variety of brass, bronze and copper products. The uses and advantages of these non-ferrous metals are explained by text and drawings. The elaborate facilities of the company are said to assure prompt delivery of almost any size piece of these metals desired.

60—Steam-Jet Ejectors—An attractive bulletin by the Worthington Pump and Machinery Corporation, features their single stage steam-jet ejector. Drawings show the construction and operation of the ejector, and a table gives the capacities of the various size units.

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How the Gossip behind My Back... Cured Us of Assembly Delays

I OVERHEARD —

Other department heads were blaming inefficiency on my assembly line for delivery date delays. Naturally, I was worried.



I INVESTIGATED —

And found that the whispers were justified. Delays, low output, worker fatigue, were crippling our plant, particularly . . .



SCREW-DRIVING DELAYS!

Slow, awkward two-handed driving with slotted screws; scratched surfaces, fumbled screws—crookedly driven, split, burred, wasted!



OLD-FASHIONED FASTENING

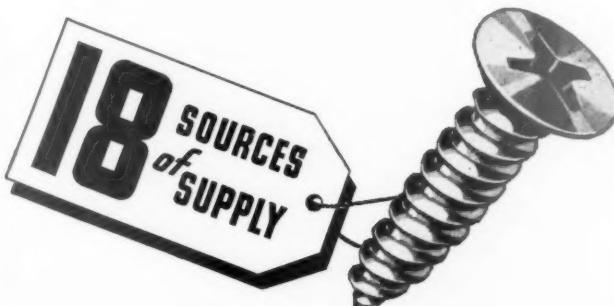
A lot of small troubles added up to a big headache — all the result of buying a slow-driving slotted screw because it was *priced* less. Naturally we changed to Phillips Recessed Head Screws . . . and *now* . . .



PHILLIPS SCREWS CUT OUR ASSEMBLY TIME 50%!

- permitting fast power driving
- eliminating extra operations, pilot holes, washers
- freeing operator's hand to hold work
- increasing holding power (fewer screws needed)
- eliminating refinishing costs and time.

Slow-driving slotted screws may be holding up your assembly line right now. Hundreds of screw-using factories have obtained remarkable results by changing over to Phillips Screws. Write one of the firms listed below for facts about Phillips Screws in *your* industry.



PHILLIPS RECESSED HEAD SCREWS

*Speed Product Deliveries by
Cutting Assembly Time*

WOOD SCREWS • MACHINE SCREWS • SHEET METAL SCREWS • STOVE BOLTS
SPECIAL THREAD-CUTTING SCREWS • SCREWS WITH LOCK WASHERS

U. S. Patents on Product and Methods Nos. 2,046,343; 2,046,837; 2,046,839; 2,046,840; 2,082,085; 2,084,078; 2,084,079; 2,090,338. Other Domestic and Foreign Patents Allowed and Pending.

American Screw Co., Providence, R.I.
Central Screw Co., Chicago, Ill.
Chandler Products Corp., Cleveland, Ohio
Continental Screw Co., New Bedford, Mass.
The Corbin Screw Corp., New Britain, Conn.
International Screw Co., Detroit, Mich.

The Lamson & Sessions Co., Cleveland, Ohio
The National Screw & Mfg. Co., Cleveland, Ohio
New England Screw Co., Keene, N.H.
The Charles Parker Co., Meriden, Conn.
Parker-Kalon Corp., New York, N.Y.
Pawtucket Screw Co., Pawtucket, R.I.

Pheoll Manufacturing Co., Chicago, Ill.
Russell, Burdsall & Ward Bolt & Nut Co., Port Chester, N.Y.
Scovill Manufacturing Co., Waterbury, Conn.
Shakeproof Lock Washer Co., Chicago, Ill.
The Southington Hardware Mfg. Co., Southington, Conn.
Whitney Screw Corp., Nashua, N.H.



How To Get Rid Of "JUNK HEAP" DESKS

*... send for this 4-step plan
to speed up your office routine!*



1. PUT PAPER TO WORK FOR YOU.

You can eliminate costly bottlenecks, get things done quickly and correctly—by the proper use of paper and printing. The book, "21 Ways to Keep a Clear Desk," shows you how to accomplish this. It gives specific, tested ways to organize routine. Illustrates printing that will clear away detail, step up efficiency, pin down responsibility. Outlines proven time-savers to help men in jobs of management and jobs of detail.



2. SET UP AN EFFICIENT FORM SYSTEM.

A smooth-running system of printed forms is your most effective tool for handling detail work rapidly, accurately, almost automatically. "How to Design a Business Form" will help you set up such a system in your office. It tells you what information a printed form should carry . . . provides a check-list for testing your forms . . . suggests standard sizes to meet practically any need . . . tells how to organize form control. The Signal System booklet shows how colored forms can speed up work.



3. ORDER PRINTING ECONOMICALLY.

You've planned your forms with care. Buy them the same way. These handy layout and order sheets save you time and money in laying out printed forms. They help eliminate errors, misunderstandings and expensive author's alterations. They contain a check list to guide you in designing or revamping forms. They provide all information essential to your printer when you order. Available for either Pica or Elite typewriter spacing.



4. USE THE RIGHT PAPER FOR EVERY JOB.

Good forms call for good paper. A paper that prints sharp, clean, economically . . . takes handwriting and typing easily . . . erases neatly without scuffing . . . makes half a dozen clear carbons. A paper that's sturdy, keeps its snap and stiffness under handling. A paper that's economical to buy, economical to use.* Specify Hamermill Bond. Complete sample book makes it easy to select the right weight, size, color and finish for every bond paper use.



*25 letter size sheets of economical Hamermill Bond cost only 1¢ more than cheap, unsatisfactory paper.

**HAMMERMILL
BOND**

LOOK FOR THE WATERMARK IT IS HAMMERMILL'S WORD OF HONOR TO THE PUBLIC

TO READERS OF "PURCHASING" these 4 practical office helps are free. They've helped hundreds of business men. They'll help you. Send for them now!

PUR-JUN

Hamermill Paper Company, Erie, Pa.

Please send me the office helps checked:

- "21 Ways to Keep a Clear Desk"
- "How to Design a Business Form" and the Color Signal System
- Layout and order sheets (Check Pica____; or Elite____ spacing)
- Sample book of Hamermill Bond

Name _____ Position _____
(Please attach coupon to your company letterhead)

When writing Hamermill Paper Company please mention Purchasing



MACKLIN

Grinding Wheels

Let Macklin quality wheels "Protect your Production" on all kinds of grinding jobs. They are scientifically made in all sizes and shapes, in all grain and bond combinations. They are efficiently doing their important part in the National Defense program.

Ask for the services of an experienced Macklin Sales Engineer who, without obligation, will gladly assist you with your grinding problems.



MACKLIN COMPANY

Manufacturers of GRINDING WHEELS—JACKSON, MICHIGAN, U. S. A.

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Sales Offices:—Chicago - New York - Detroit - Pittsburgh - Cleveland - Cincinnati - Milwaukee - Philadelphia

When writing Macklin Company please mention Purchasing

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Files with teeth that cut like a Metal Saw. Remove more metal. Stay sharp longer. Any style or length. First grade only.

Best sellers—Best cutters
Write for book "File Facts."

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Simonds
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COLOR
ON THE
TANG
TRADE
MARK
REG.
U. S. PAT.
OFF.

F.O.B. *filosofy of buying*

INVENTORY control by government is now with us. Starting with the "mild control" which required the seller to obtain an affidavit from the buyer that orders were for production and not for stock, it is amplified to the point of calling for periodic detailed reports of stocks on hand of certain critical materials, and the likelihood is that this list will be greatly expanded during the months ahead. Doubtless these reports will disclose some situations that will take some explaining. Which calls to mind that most poignant inventory story of the salesman who was covering a very sparsely settled rural territory and came across a general merchandise store at the crossroads. He went in and cast a quick appraising glance about him, to estimate the sales potential of his prospect before he went into his story. To his amazement he saw, ranged in front of the counter, a dozen large barrels of salt. He looked up at the shelves; they were crammed with packages of—salt. He peered into the back room; more salt, piled high in 5 and 10 pound sacks. He turned to the proprietor. "You must sell a whole lot of salt around here," he remarked. "No," said the merchant. "I don't sell a lot of salt." Then he added, rather plaintively, "But the fellow who sells me salt sells a lot of salt."

Traditionally it is said that the man who has never had to meet a payroll can not qualify as an experienced businessman. Change that now to the man who has never had to get delivery of some badly needed supplies.

DELIVERIES are very much on every purchasing man's mind these days—a state of mind that is reflected in the headline of a recent report from the Rochester Association following a meeting at which Dr. J. Anton de Haas was the featured speaker. Incidentally, every

one who heard the Dynamic Doctor's discussion of international affairs at the N.A.P.A.'s Cincinnati convention, and again at Chicago, will agree with this appraisal. The headline summed it up this way:

de Haas
de livers
de goods

Are Purchasing Agents growing more affable under the exigencies of this sellers' market? It would seem so from the grudging admission of one sales manager who tells us, "I still think P.A.'s are crabs—but maybe they're soft-shelled crabs now."

FROM time to time we have taken occasion to point out the constant and increasingly rapid growth of the purchasing officer and his department as a vital factor in the industrial organization. Especially in recent months it has seemed to us that this stature is so clearly demonstrated as to preclude any further question. Then we run across the routing list printed on the front page of *Metal Congress Review*, which cites fifteen officers by title, presumably reflecting in a general way the relative importance placed upon the various functions. That list is (1) President, (2) Vice President, (3) Secretary, (4) Treasurer, (5) Sales Manager, (6) Chief Engineer, (7) Superintendent, (8) Master Mechanic, (9) Metallurgist, (10) Chemist, (11) Designer, (12) Foreman, (13) Welder, (14) Foundry Man, and (15) Purchasing Agent. Are we downhearted? Not at all. It merely confirms our contention that an educational program concerning industrial buying must have a two-fold objective, reaching not only purchasing men themselves but also to managerial and executive positions outside the purchasing ranks

who somehow deal with purchasing men. Perhaps this is a spot where a little concentrated factual education is needed.

Ten years ago, says the Old Timer, we probably wouldn't have been on the list at all.

THE OPM officials, who have been battling with the problem of getting our national production capacity to work on a gigantic and urgent Defense Program which must have the right of way over ordinary civilian business, have been stressing the fact that "Business as usual is OUT for the duration of the emergency." There's an Italian restaurant in New York which has coined another variant on the slogan. The place has been growing so popular in recent months that there has been a more or less constant expansion program in process—new rooms being started even before the last new rooms have been completed. At first the proprietor put up the conventional sign, "Business as usual during alterations." Now, getting into the spirit of the boom, he has changed it to read, "Alterations as usual during business."

Orchids to the Chicago Convention Committee for a grand job of planning and service, that functioned smoothly under a load utterly without precedent in Association history.

GENERAL attendance figures were particularly gratifying in view of the fact that in these emergency days the buyer has a pretty hard time getting away from his urgent duties at home. One buyer countered this argument by pointing out that National Defense, which has the biggest and most urgent procurement job of all, planned to be at Chicago in full force—division heads and key assistants all having a part in the program; and defense buying was not expected to suspend operations for the duration of the convention.

Of course, if worst came to worst, OEM could practically have summoned a quorum right in the Stevens Hotel.



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Materials Handling . . .
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When you want quick information on electrical apparatus and supplies, call your Westinghouse Sales Office or Wholesaler—here you can get the answers to questions regarding deliveries, stocks available, prices, specifications, application and installation data.

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Standard products and supplies are stocked by your local Westinghouse Distributor. And his representative can give you practical help on motors, control, insulating materials, circuit protective devices, lighting equipment, wiring, conduit and accessories.

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Every Westinghouse Distributor is backed by the Westinghouse organization, offering engineering and application information and service on any type of electrical installation—new or replacement. Over 50 years' electrical knowledge and experience is at your company's service.

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TIME SAVERS FOR INDUSTRY



WESTINGHOUSE COMBINATION LINESTARTER

For Motor Control and Circuit
Protection
CLASS 11-206

Magnetic motor starter—motor-circuit switch—motor overload protection—nofuze circuit protection—all in one unit. Bi-metal gives permanently accurate overload protection. "De-ion" quenchers protect contacts—save maintenance. Four-in-one Unit saves installation time—saves space—saves wiring—provides greater protection for operators.



WESTINGHOUSE "DE-ION" MOTOR WATCHMAN

Manual Across-the-line Starter
for Motors up to 7½ hp.
CLASS 10-100

Quick - make, quick - break toggle action prevents "teasing" contacts. "On," "Off," "Tripped" positions self-indicating. Bi-metal disc overload protection. "De-ion" protection for contacts. Ample wiring space. Rust-resisting parts. Silver contacts. Key-hole mounting for quick, easy installation.



WESTINGHOUSE SAFETY SWITCH

For Circuit Protection

Diamond-pointed break jaw and extended-blade construction prevent burning and beading of contacts. One-piece copper construction saves money by preventing power loss. Quick - make, quick-break on Types A and C. Ample space for wiring. Solderless lugs. "De-ion" arc quenchers on 575-V switches.



WESTINGHOUSE AB-I BREAKER

For Circuit Protection

Eliminates switch and fuses. Bi-metal overload protection. "De-ion" protection for contacts. Saves maintenance time and production time—circuit outages can be restored by operator. No live parts exposed. Door opens only when switch is in "Off" position. Occupies approximately 40% less space than switch and fuses.

Call your nearest Westinghouse Sales Office or Distributor

Time Savers

New Bench Grinders

Step Up Efficiency, Save Time

HUNDREDS of industrial plants throughout the country have found that they save time and get more work done by spotting Black & Decker Bench Grinders at various points in the plant. For the ability to sharpen tools, wire-brush, burnish, buff and perform grinding operations right on the job, eliminates wasteful steps, increases shop and workers' efficiency.

The Bench Grinders illustrated soon pay their own way by quickly handling dozens of jobs that normally require slow, laborious hand filing, sanding, rubbing. All are sturdy, ball-bearing units powered by con-

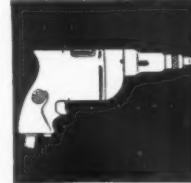
stant speed motors and equipped with adjustable tool rests and safety wheel guards. The three large Black & Decker Bench Grinders can be fitted with eye-shields.

There are four models to suit your needs: The 6" Junior has a sturdy $\frac{1}{4}$ H. P. motor; 6" Heavy Duty, a $\frac{1}{3}$ H. P. motor; 8", a $\frac{1}{2}$ H. P. motor and the big 10" Grinder, a full 1 H. P. motor. Have your Jobber recommend the Bench Grinder best suited to your work. Or write The Black & Decker Mfg. Co., 764 Pennsylvania Ave., Towson, Maryland.

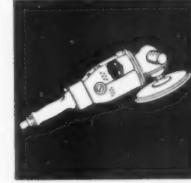
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Faster, Better.



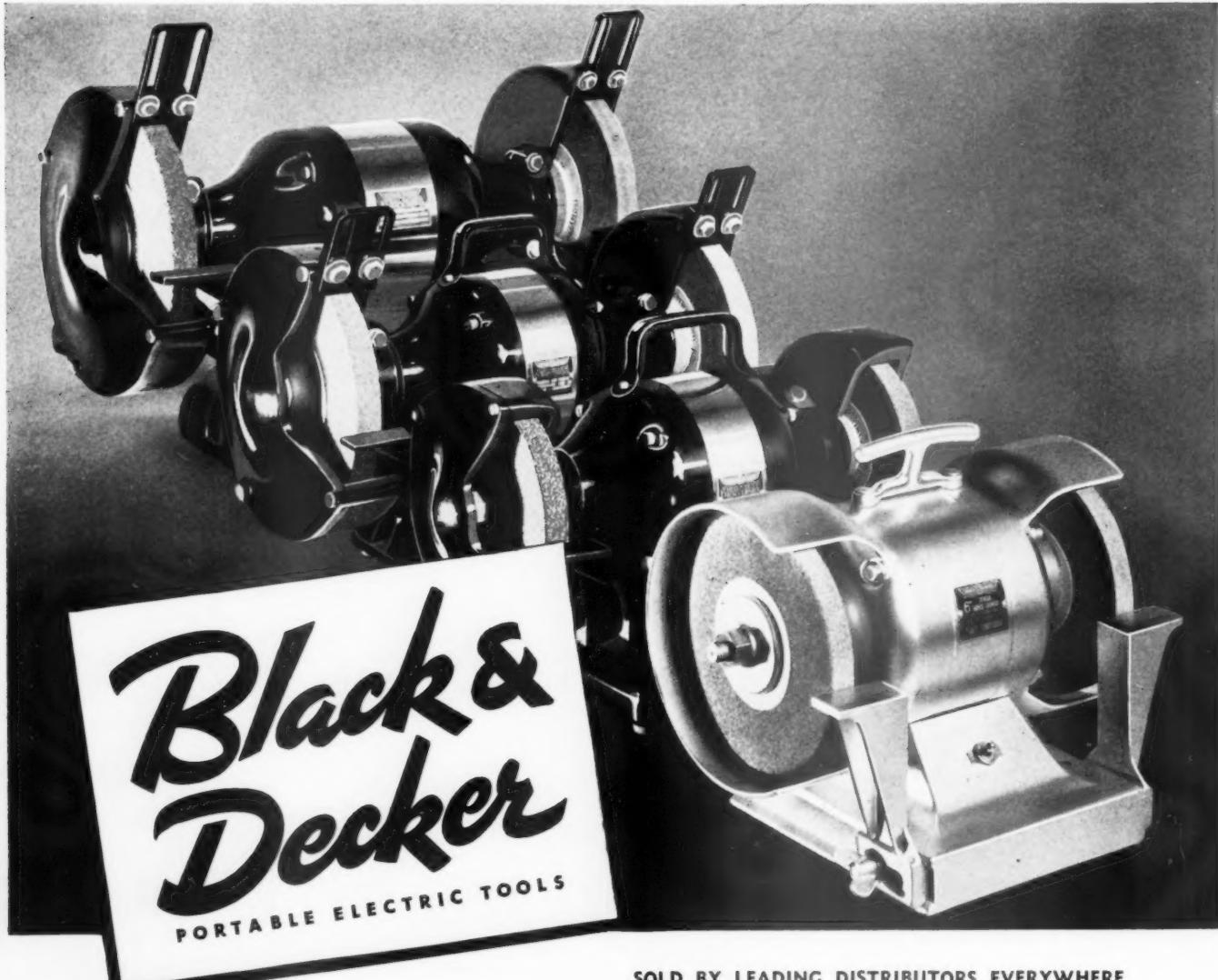
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Scrugun



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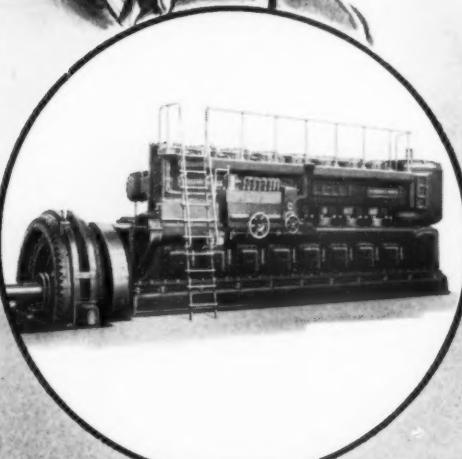
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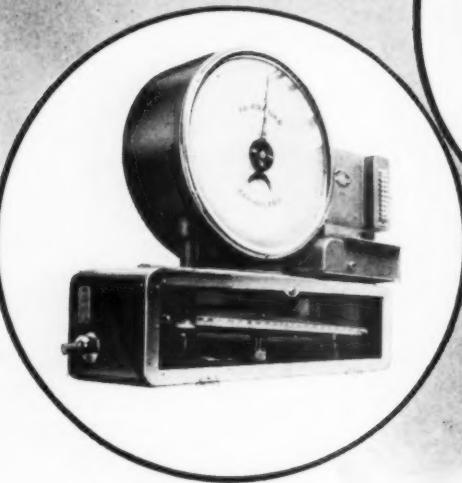
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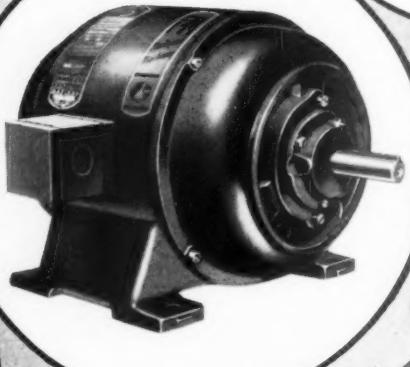
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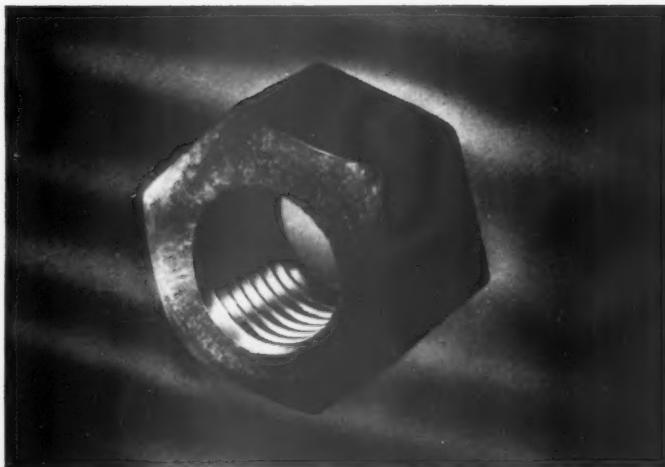
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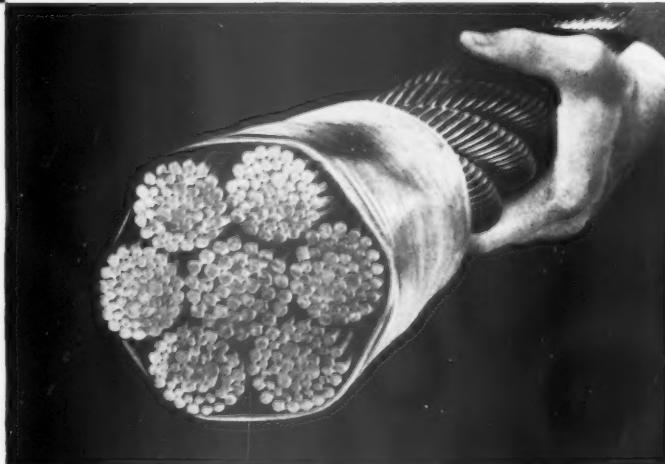
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1 For a tougher nut, order "Bethlehem Hot-Forged". In sizes from $1/2$ -in. up, in any shape or finish, Bethlehem nuts have extra toughness built in them, are less likely to strip. Here's why....

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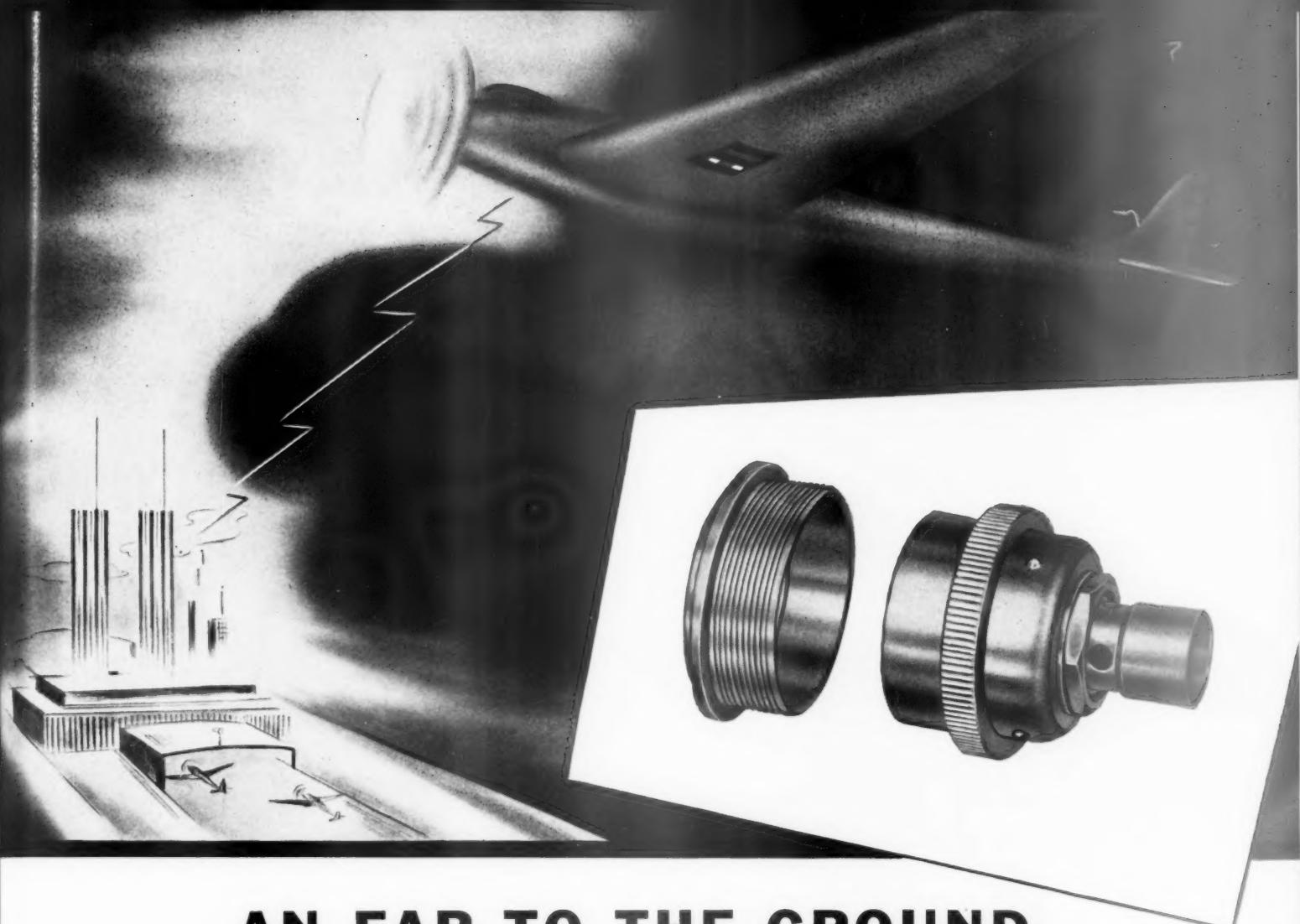


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may help you make a landing tomorrow

Take a look at this connector shell assembly for an airplane radio.

Its brass cut-and-drawn shell is stamped, edged, machined to provide a shoulder for the threaded ring. It is then drilled, countersunk, assembled to the ring and nibbed. You can imagine what close figuring and accurate producing are required to build up nickel plating on threaded areas, yet keep within tolerances.

This entire unit, made to order by Scovill in quantity production, is one among many thousands of metal parts and assemblies which illustrate Scovill's contract manufacturing service. This service—as versatile as metals, as flexible as the future itself—can be summed up in this equation:

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Metal parts and products made to order in quantity from Brass, Steel, Aluminum and other base metals.

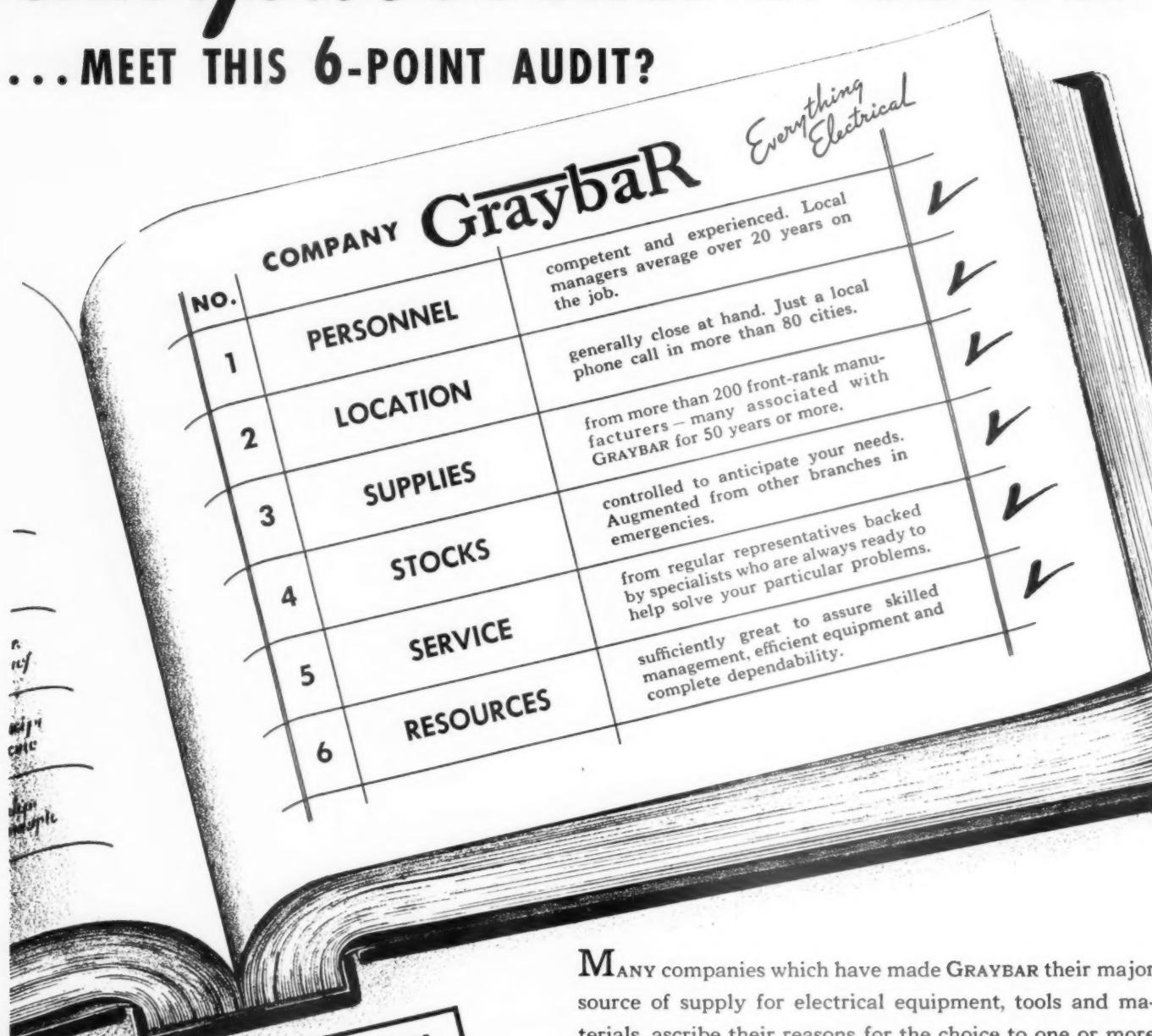
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